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HNEBY10	8062	968455	1 - 490	15 - 504	AA932258.
HNEBN04	8063	927811	1 - 464	15 - 478	AA984174.
HNEBM59	8064	950732	1 - 480	15 - 494	AL121603.
HNEBM40	8065	868109	1 - 418	15 - 432	
HNEBJ95	8066	529572	1 - 188	15 - 202	
HNEBJ81	8067	529571	1 - 158	15 - 172	
HNEBJ67	8068	529573	1 - 113	15 - 127	
HNEBJ62	8069	861074	1 - 276	15 - 290	AL620676, AC004929, AC002996, AC005037, AP000240, AC003070, AL049779, AC006946, AC005295, and AL008718.
HNEBJ43	8070	529574	1 - 187	15 - 201	
HNEBJ31	8071	529577	1 - 321	15 - 335	
HNEBJ21	8072	529578	1 - 216	15 - 230	
HNEBJ10	8073	968440	1 - 267	15 - 281	AA826197, and Z99128.
HNEBJ09	8074	529579	1 - 158	15 - 172	AP000556, and AP000557.

HNEBJ07	8075	861072	1 - 350	15 - 364	N53565, AI701080, AW263784, AL041578, AL041530, AA490097, N64437, AW245179, AW090754, AI566408, N87410, F31619, AA348402, AA456422, AI364074, AA371642, AW408686, AW074022, AI924806, AA558857, R69934, AA569065, AW104748, AW408106, AA507991, AA078255, AW373604, AA287618, AA776211, AA639025, AW383357, AA317096, AI038597, AI568678, AA780386, AA586850, AA600126, AA156484, AL135074, AA483942, T65978, AA192888, AI370650, AC007358, AL021154, AC007917, AL031985, AP000344, AC006449, AC004655, AC007384, AC005099, AL109758, AC004185, Z83822, AC005821, AL035423, AC002430, AL049569, AC006530, AC002480, AC005017, Z85986, AC004526, AP000689, AP000509, AC005529, AL031778, AJ251973, Z94056, AB003151, AF003626, AL049589, AC006948, Z84480, AC002477, AC003977, AL031651, Z84469, AC002988, AC005255, AC002549, AC012627, AC002558, AC005164, AJ003147, U64453, AF124523, D84394, AC002070, U91322, AC003030, AC006511, AC004106, AC004491, AC005777, Z98750, AL031290, AF195658, U80017, AC004019, AC005913, AC006241, AL109984, AC005800, AF053356, AC007538, AC007055, AC002312, AP000240, AP000557, AC005971, AF111169, AL109798, AC005200, AL022323, AC004854, AC005535, Z82244, AC005725, AP000558, AC002350, AC006388, AC003692, AC007993, AC004929, AL117330, AC004834, AC004531, AP000553, Z82214, AC002094, AC003982, AL049780, AC006441, AC007225, AC007536, AP000555, Z46773, U47924, U96409, AC005747, AC005053, AL121652, AL009181, AL049839, AL133371, AC009516, Z83840, AC006487, AC007546, AC006515, AC005858, AC005841, AC004905, AC004814, AC007090, Z93023, AC004832, AL022476, AL096701, AC005102, AC004583, AC005332, AP000275, AC006132, AL078638, AB000882, AL022238, AL134448, AL096791, AC003684, AC005751, AF091512, AC008012, AC005914, Z93020, AC006064, AL035089, AL050332, Z98036, AC004231, AP000105, AP000037, AP000503, AC004638, AC005363, AP000690, AL008721, Z97183, AC002416, AP000959, AC006251, AL008583, Z98256, AC002310, AL023575, AL121754, AC003663, AL049834, AC016027, AL121653, AC005089, AC006130, AC016830, AC004253, AL021366, AF205588, Z68226, AC006539, AL049697, AC005722, AC007344, Z97876, AP000114, AP000156, AC002526, AC004882, AC006480, AL049745, AL031774, AL122023, AL096678, Z68756, AF134726, AC005095, AC004477, AC008273, AP000025, AL049776, AC005820, AC003041, AL031575, AL009183, and AL078632.
HNEBF27	8076	684467	1 - 255	15 - 269	AA340904, AC002430, and AC007384.
HNEBF20	8077	529643	1 - 66	15 - 80	AI298252, AI954850, AI743793, AI807633, AI537343, and AI208171.
HNEAQ86	8078	575534	1 - 288	15 - 302	F30650, AI567391, T05684, F30586, F35689, F16848, AA507814, AA570441, AA515728, AI707744, AW419389, AA654482, R74433, T17332, AI869797, AA947369, AA340737, AA229159, AL121287, AI689198, R89560, AA610381, AA598736, AL037632, AI246996, AA338770, T39217, AA226532, AA527109, AW328202, R34070, AW150387, F30158, AA985199, AC002544, AL096791, U91326, AC005231, Z82215, AL022327, AC006312,



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HNEAQ37	8079	507280	1 - 330	15 - 344
HNEAN10	8080	968468	1 - 395	15 - 409
HNEAK47	8081	529646	1 - 251	15 - 265
HNEAF71	8082	761414	1 - 473	15 - 487
HNEAA59	8083	738531	1 - 511	15 - 525
HMWJD93	8084	849419	1 - 478	15 - 492
H41860, AA321412, AA936323, and AA213692.				
H30730, and H30813.				
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HMWIZ55	8085	731809	1 - 210	15 - 224	AW301879, AW408709, N27559, AA856945, R20715, H71238, AC006017, AL049712, AC005837, AC016027, AC016830, Z85986, AC004605, AC005618, AC006277, AP000355, AC004890, AC004560, AL031666, AC005520, AC007845, AL034423, AL009181, AC004985, AL031728, AL031295, AC004056, AC007955, AC006512, U93305, AC005102, Z79997, AP000512, AB023049, AC016026, AL021878, AL049832, AF024533, and AL078611.
HMWIX77	8086	973813	1 - 634	15 - 648	D58283, D80043, D50979, D59467, C14389, D80188, D80195, D80227, D80164, D59275, D59502, AA305578, D80391, D80253, D59787, AA514188, D57483, D59859, D80022, C14331, D80166, D51423, D59619, D80210, D51799, D80240, C15076, D80196, D80269, D81030, D80038, D81026, D80212, D80193, D80219, D80366, D59927, D80378, D59610, D80522, AA305409, D51022, D59889, D50995, D80045, D80024, D80248, AW177440, D80241, C75259, AW360811, T03269, AA514186, C14429, D80251, AW178893, D51060, C14014, D80133, AW375405, AW179328, D80247, D80439, AW366296, AW378532, AW377671, AW360844, D80268, AW360817, AW375406, AW378534, AW179332, AW179023, AW178905, AW177731, AW177501, AW177511, D58253, C05695, D80302, D80132, AW178762, D51103, AW179020, D51250, AW352171, D80134, D52291, AW377676, AW178906, AW352170, AW178907, AW178908, AW179019, AW179024, AW178775, AW369651, D80157, AW177505, AW177722, AW352158, AW360841, AW352117, D59373, AW178909, AW177456, D51759, AW179004, AW176467, AW179329, AW178980, T11417, AW177733, AW378528, AW178754, AW179018, D59695, F13647, AW179009, AW179012, AW178914, AW178911, AW378525, C06015, AA809122, T48593, D80168, AI910186, AW367967, C14227, D58246, AW178983, AW177728, AW178774, D81111, AW378543, AW360834, AI905856, AW352163, D59653, C14298, D80064, C14407, D45260, D59503, AW178781, AW177723, AW352120, AW367950, AW178986, AW378540, H67854, C03092, H67866, AI525923, D59627, D59317, D58101, Z21582, D59474, T03116, AI525227, D80258, C14957, D60010, AW177734, AI525917, AI557774, D80014, C14973, C14344, AW378533, AI535686, D51221, D51097, D51213, D59551, AI525242, AI525920, AA514184, D60214, T03048, AI557751, C14046, AI525912, AI525235, D45273, C16955, AI525925, AA285331, AW378542, AW378539, AI525215, AI525237, Z33452, D50981, C05763, T02974, AI525222, AW360855, D31458, T02868, H67858, C04682, AI525928, C13958, D51053, Z30160, AI525228, N66429, D80314, AJ132110, AB028859, AF058696, AR008278, A84916, A62300, A62298, AR018138, Y12724, D26022, A82595, X67155, Y17188, A25909, A67220, D89785, A78862, D34614, AB002449, AR060385, D88547, AR016808,

HMWIX37	8087	708676	1 - 363	15 - 377	A94995, I82448, I50126, I50132, I50128, X82626, I50133, AR066488, AR008443, AR016514, AR060138, A45456, A26615, AR052274, AR025207, Y09669, A43192, A43190, AR038669, AR066487, I14842, A30438, AR054175, D50010, Y17187, AR066490, A63261, I18367, AR008277, AR008281, AB012117, AR008408, AR062872, A70867, AR016691, AR016690, U46128, X68127, D13509, AR060133, I79511, A64136, A68321, A85396, D88507, AR066482, A44171, A85477, I19525, A86792, X93549, AF123263, AR032065, Z82022, and AR008382.
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HMWIS12	8088	970753	1 - 1087	15 - 1101	AI684734, AW134873, AA912105, AI808963, AA905108, AA764759, AI911204, AW268977, AW405428, and AW086137.
HMWIQ64	8089	842657	1 - 1650	15 - 1664	H51069, H93820, H93316, H51070, AL048969, AA603421, AA535216, AA679794, N57681, AI281818, AA714110, AI859438, AW410354, AI380617, AA129746, AW419389, AA714011, AW407632, AW021161, AI884383, AA489240, AA601230, AW022934, AW151247, AI523074, AA604831, AW341978, AI291439, AI537995, AI536858, AI130709, AI709307, AW131356, T74524, AA678950, AW272640, AI814682, AI446623, AI735609, AI120959, AA558404, AL042906, AI340151, AA829044, AC002126, AC004491, AC005081, AL096791, AC006449, AC005632, AL031670, AC004859, U91326, AC002365, AL109865, AC005015, AC005332, AC007731, AC005500, AF196969, AC005399, AC006211, AC006121, L78833, AC005225, AC003982, AC005527, U47924, AF129756, AC004983, AL031680, AL049779, AL049540, AL121603, AC005088, AL109627, Z98941, AC006312, AC002316, AC002425, AC005529, AL139054, AC004991, AC005736, AC005519, AP000512, AL035072, AL031846, AF001548, Z98946, AF001550, AC005531, AC005746, AC002477, AL031230, AL031311, AL024498, AF111168, AC003101, AC005911, AC005011, AC003684, AC002544, AC006441, AC006111, AC004019, AC002301, AC005488, AL031673, AC004841, AC002303, AC005409, AC005207, AC006480, Z83840, AC002429, AC005484, AL133245, AJ011930, AF109907, AL031133, AF047825, AC007880, AL133246, AC005520, AP000557, AC007686, AC004253, AL049776, AL031662, Z83846, AC007371, AL096701, AC005288, AC009516, AC003043, AL080243, AC002565, AC005089, AF001549, AL021391, AC003029, AC002470, AC004033, AC002073, AP000134, AP000212, AC005839, AC007637, AC004659, AC006538, AL022302, AF134726, AC004584, AC000353, AC000052, AC005695, Z98884, AC005231, AC004821, AC004000, AL121658, AC003109, AP000359, AL133163, AC004797, AL031283, AC007263, AC007536, AF001552, AC005368, Z99716, AL050318, AC005940, U91323, AC005280, AP000248, AP000558, AL031282, AC002543, AC012384, AC004139, AC009247, AC016025, AL035659, AC005913, AC005971, AP000514, AC002302, AC002350, AC002347, AC004477, AC005599,

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HMW1Q44	8090	716509	1 - 625	15 - 639	
HMW1O15	8091	956253	1 - 360	15 - 374	
HMW1M05	8092	861094	1 - 567	15 - 581	AA160427, AI912401, AA228442, AW272815, AA972523, AA484892, AA728911, AA449923, AI733856, AI860535, T74524, AW019964, AA502980, AI049643, AA653291, AA904211, AW270385, AI864500, AL041375, F23327, AA593537, AA485402, AA757758, AI537995, AI536858, AI130709, AA515351, AI142231, AA577985, AI989408, AA502977, AI434311, AI690379, AW237905, AW265688, AA827383, AA298365, AI791659, AW169038, AL139054, AC003029, AC006111, AC007216, AC006211, Z84480, AC005102, AC005519, AC004883, Z95114, U95742, AC007227, AC006312, AC005086, AL109798, AC005484, AC005412, AL008582, AC005229, I39891, AC005730, AP000355, AC005722, AL031728, AL009183, AC004230, AL022320, AL121603, AC002996, AC004583, AL022316, AP000090, AL109963, AC005372, AC004106, Z83840, AC007690, AC009247, AC005914, U78027, AC005933, AL109628, AF053356, AL035420, AC007240, AL022476, AL050318, AL031255, AC003101, AC006449, AC006064, AP000704, AC004000, AP000044, AP000112, AC007421, AC000025, AC005839, AC020663, AF207550, AC005696, AC004966, AC004019, AC002128, AC005031, AL031447, AC005971, AL031311, AC005071, AC004819, AL021393, AC004876, AL023575, AL035422, AP000067, AC004975, AL096701, AC005776, AC004253, AC003109, AL079340, AL035423, AC004859, AC005057, AP000689, U96629, AC005488, AC004813, AC007225, AC005368, Z98946, AC006317, U63721, AP000557, Z97056, AP000008, AC006511, AP000555, AC004963, Z93930, Z84469, AC005399, AC006285, AC004967, AC005670, AC004821, AC006539, AC002350, AC004851, AC005015, AC005261, AC005837, AC004955, AC005899, AC004884, AL035681, Z98044, AC004491, AC004263, AF190465, U80017, AC005081, AL121825, AL031681, AC005225, AL020997, AF196779, AC002310, AL034420, AL049569, AF134726, AC002040, AC002477, AL121652, AL031767, AC007308, AC006077, AC007226, D87675, AF001552, AC004383, U47924, AC007066, AC000353, AC007686, AC009516,

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HMWIL08	8093	959512	1 - 708	15 - 722	AI377192, AI184080, AA450266, AW026855, W65480, AI869635, H92183, H14198, AA974576, R58922, R90834, H97357, and AA351111.
HMWIK10	8094	964701	1 - 611	15 - 625	AA776466, AI470184, AI742757, AI750964, AA865422, AW005649, AI750965, AI969031, AI741029, AW139279, AA338882, AI445299, AW341808, AB032959, and AL021393.
HMWIG75	8095	767332	1 - 318	15 - 332	AW193265, AW408717, AI613280, AI350211, AI281881, AI270117, N53150, AL046409, AA623002, AI860013, AA828704, AI284640, AI334443, AI431303, F36273, AI358571, AA490183, AI119691, AA482711, AI799642, AA587604, AI754658, AW083402, AA613203, AA834707, AW261871, AL038705, AW438643, AA577906, AW083364, AW270270, AL044940, AW276827, AL037683, AA806796, AA722372, AA720702, AA551503, AA493471, AA613232, AI370074, AL041690, AW338086, AI370094, AA862173, AI133164, AA535661, AI570261, AI457397, AI375710, AA503947, AI744995, AI688846, AA584167, AI053672, AW274346, AA599920, AW193432, AI814735, AI471481, AI286356, AA631507, AA723017, AI634384, AI744188, AL038785, AA364429, AA719805, AW020141, AI696962, AI376100, AI921649, AA630925, AA491814, AW406447, W79504, AA134367, AI537955, AA213741, AA649642, AI281697, AI499938, AI368745, AA525824, AA664015, AI076616, AA362349, M86143, AI956124, W05405, AI559705, AA219129, AA661921, H71429, AI798473, AI969436, AA501600, N66026, AA368936, AA126777, AA350859, AA594725, AA601388, AA984708, AI963720, N27763, AA164251, AA469451, AI370878, AW148792, AA244357, AI017024, AI138455, AL040921, AI002834, AL043009, Y18431, X95097, AF077058, X55932, AF015167, D83989, U57005, AF015147, X55925, U18391, U18394, U18392, X54179, A39972, X55926, U57009, X54180, U18395, U18393, I51997, AF015157, U12582, X55927, U67801, U57006, X53550, X54175, X54181, X54178, U18398, X75335, U57008, U67832, X55924, U18387, X54176, AF015166, U67831, X55931, S75201, U18390, U04355, L47228, Z22650, AF015156, X55923, L35531, U67829, AL033543, U67827, AF015151, X55929, AF015149, X62356, X55930,

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HMWIG26	8096	861091	1 - 354	15 - 368	R91765, H80580, AI127315, and W69323.
HMWIG17	8097	663972	1 - 473	15 - 487	W92749, AI135553, AA723171, AA971474, AA716724, AA723148, AI129477, AA722631, AA126701, AA759279, AA128243, AA054734, AW130619, AI342776, AA521028, AA758558, H30397, AI312713, AW007796, AA814686, AI458733, AI911961, AI356318, AA448696, R50475, AI992039, AA885885, AI335606, AA448808, AI244820, AI243873, AI692581, AI018349, AA746499, AA831847, R69848, AA045310, AI279451, AI540785, W84621, AA648741, AI686115, R23217, AI652242, AI277449, AA983572, AI199899, AA977601, AA434264, AI284514, AI356077, H30405, AI061132, AI148418, AW300520, AA040698, AI969976, AW083124, AI160129, AI424072, AI536950, AI093214, AI089947, AW170119, AA811443, AA936383, AI142495, AW006134, AA447432, AA401210, AI831954, AA383372, AI371031, AA555078, AI189568, AI830792, AA043162, R69469, AI401693, AI738759, AI910399, AI188058, AW090281, AA641027, Y17454, AF159025, and AB030835.
HMWIG01	8099	913689	1 - 147	15 - 161	
HMWID28	8100	419821	1 - 585	15 - 599	T92652.

HMWIA19	8101	928488	1 - 256	15 - 270	
HMWHZ43	8102	861097	1 - 364	15 - 378	AA872717.
HMWHW8 2	8103	779903	1 - 277	15 - 291	H71976, and AC004128.
HMWHV36	8104	708099	1 - 364	15 - 378	T82833, and AW404502.
HMWHV12	8105	970742	1 - 408	15 - 422	W69602.
HMWHP86	8106	785510	1 - 305	15 - 319	AI952414, AI821854, AA594979, AI821710, AI253514, R06129, AI735011, and AA641406.
HMWHD94	8107	794306	1 - 214	15 - 228	AA158392, AA226584, AA484143, AI002734, AI298246, AI241835, AA311194, AA640704, AW075845, AC005480, AC004955, AP000512, AL049759, AC005221, AP000359, AC002350, AC016025, AC006480, AF064861, AL035072, AC004765, AJ003147, AC003029, AC002375, AC004805, AC005037, AC004883, AC004921, AC005755, AC006285, AC005803, AC005484, AC006538, AC006065, AL050348, AC008126, AL137191, AL022326, AL049780, AC005940, AL096791, AL031432, AC006166, Z84480, AC002420, AC005971, AC007695, AB023051, AC002115, AL049871, AF196969, AF091512, AC004865, AL078614, AC007738, AF195658, AC006530, AF067844, AC004821, AC007537, AL031602, AC003982, AC004701, AL023494, AC007360, AC002425, AP000114, AP000046, AL132994, AC007639, AC002351, AB020865, AP000269, AC008134, AC005746, AC005519, AL121652, AL031281, AC005887, AC005921, U73636, AL031255, AL132987, AL096701, AC004000, AC006064, AP000032, AP000035, AC005291, AC007387, AL035458, AB023049, AC005520, AL022313, AC019014, AC004890, AC006344, AC006387, AC005696, AP000103, AL035086, AC006251, AC005409, AL034417, AC002565, AC005768, AP000556, AC008101, AP000260, AC004682, AL035413, AC004796, AC006449, AL035587, AC007688, AC006138, L44140, AC006522, Z83851, AC004019, AC006039, AL022345, AC004596, AC006312, Z69838, Z84484, AC005091, Z93017, AF053356, AC004854, AC007193, AP000208, AP000130, AP000099, AC002470, AC004963, AL132777, AL021391, AP000247, AP000344, and AC005922.
HMWHB71	8108	565104	1 - 1244	15 - 1258	AI707744, AL120282, AI688963, AL046225, AL045756, AI268019, AC006942, AC002565, AC006430, AL034555, AC007686, AC004816, AC005231, AL080243, AC002425, AC006111, U07562, AL035455, AC004491, AL133163, AC004832, AC004922, AC003101, AC009516, U95740, AL020997, AL021546, AC005740, AL031255, AL031283, AC006126, AC002551, AC007216, AF196779, Z83732, Z85986, AL079342, AL035420, AP000553, AC004967, AC005015, AL024507, AL020995, AC005736, AC004257, AC004067, AL031228, AC002288, AC004887, Z94044, AL022322, AC012384, Z97054, Z83822, AP000030, AC006285, AF205588, AF111168, L78810, AC016025, AL133245, AC006001, AC005291, U95742, AL096701, AL049749, AC000052, and AC007934.
HMWGW7 9	8109	646280	1 - 652	15 - 666	H29797, H08896, and H70302.
HMWGO48	8110	861114	1 - 633	15 - 647	AA878492, AC005907, AC005089, L78810, AL031311, AL096791, AC007055, AP000359,

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HMWGI79	8111	774806	1 - 688	15 - 702	AI821938, AI755214, AI754567, AI754105, AI038990, AI016192, AI354847, AW131356, AI249688, AW328331, AI038304, AI744788, AL045077, AA449468, AA640277, AI569100, AI243789, AW192599, AI859438, AI733856, AA578832, AI278972, AA713829, AA483606, AI889426, AI053398, AA653291, AA570740, AI281561, AA315361, AA177061, AI080307, AI249365, AA568204, AA483075, AI791659, H07953, H43771, AA634991, R87275, AW151247, AW089625, AL044339, AC005089, AF029308, AL031281, AP000065, AP000301, AC005722, AC005702, AC002544, AC007021, AC012627, AC005529, AF111168, AL009172, AC007216, L78833, AC005071, AL008734, AC005207, AC006130, AL031447, AL022320, U95742, AF129756, AL034420, AC000003, AP000555, AL117694, AP000501, AC005527, U52111, AL121603, AC008134, AL031123, AL034417, L44140, AC004849, AC005531, AC006312, AL049795, AC007676, AB023048, AF134726, AL049869, AC003043, AC007276, AL109827, AC008123, AC005911, AL049636, AL022318, AC000025, AC007308, AL136295, AP000503, AC006040, AC005231, AC007191, AC004019, AC004656, AF039906, AC006011, AC003982, AC004834, AC006501, X87579, AL031005, Z98884, AP000355, AC004895, AL049872, AF030453, AC018633, AL135744, AL049694, AB023049, AC007376, AC004686, AL035587, AL049776, AC002394, AC005228, AL109798, AF109907, AP000553, AL049712, AC004797, U91326, AL109759, AC006285, AC004878, AC008372, AP000552, M63796, AC005839, AL049766, AL008583, AL121658, AC006581, Z85986, AC005618, AL022238, AC004832, AL080243, AC000070, AL021977, AC005288, AB003151, AP000688, AF165926, AC005841, AC006241, AL008582, AC006449, AC006077, AC005081, AL135960, AJ131016, AC005530, AL078581, AC004552, Z95114, AF047825, AC006453, AC006254, AL021939, AC002430, AP000045, AL139054, AL121653, AP000512, AC020663, AC004706, AC007666, AC004820, AC005209, AC005899, AC005332, AP000511, AC005274, Z99716, AL078638, AC006084, AL035072, AC005568, AC009464, AC005399, AC007384, AF196969, AC000120, AC006211, AC010170, AP000513, AL050318, U47924, AC007684, AC007227, AC016025, AC006064, AC005280, AL022721, AF207550, Z83844, Z93241, AC005914, AL035249, AP000152, AC004655, AL049643, AC005067, AC004762, Z84469, AF030876, AC004159, AL023575,



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HMWGH30	8112	455037	1 - 288	15 - 302	
HMWGE06	8113	935593	1 - 332	15 - 346	AA928968, AI143152, AW296605, AF064858, and AL121757.
HMWFFY93	8114	506636	1 - 444	15 - 458	R34758, and AA642317.
HMWFEN80	8115	573608	1 - 334	15 - 348	L81392, AC004749, and L81391.
HMWFEN37	8116	861123	1 - 452	15 - 466	AJ003358, AA453553, and AP001061.
HMWFEN32	8117	573603	1 - 295	15 - 309	Z60346.
HMWFFI18	8118	666681	1 - 334	15 - 348	R89320.
HMWFG88	8119	592078	1 - 588	15 - 602	R10175, AW401608, AW403120, AC004233, AF014118, and AR003664.
HMWFD86	8120	785629	1 - 400	15 - 414	AA251682, AA601385, AJ003636, and AP000523.
HMWFD68	8121	861124	1 - 148	15 - 162	AA730422, AA574448, W01639, AA890425, A1053458, AW303008, AI123396, AA716211, AA702098, AI524453, AA449923, AA368616, AA077285, AA832077, AI142231, AA483108, AW378752, H56003, H42968, AI888419, AC005412, AL021877, AC005372, AC005254, AC005531, Z98304, L78810, Z84469, AL133445, AC000355, AC002988, AF165141, AC002558, Z76735, AL133500, AC004593, AL033527, AL034351, AC005566, AC005255, AC006581, AL049636, AL109798, AC005852, AL008582, AC007201, AC005736, AC004933, AF061032, AC000117, AC004993, AL121754, AC011594, AL035691, AC006277, AP000552, AC004382, AC006985, AC004918, AL049743, AC002544, AC004542, AC007279, AL022336, AP000691, L34160, U20499, AL008637, AC005666, Z82184, AC005969, AL021939, AC000061, AC004813, AF030453, AC006014, AC005088, and AC004674.
HMWFC64	8122	573596	1 - 311	15 - 325	AI284640, AI370074, AA469451, AI334443, AA720702, AI370094, AW303196, AW193265, AI312309, AA490183, AW085780, AW301350, AW274349, AI281881, AI350211, AA521399, AA521323, AW103758, AA984708, AI962050, AI613280, AI281903, AW261871, AW072923, AW407578, AW406447, AI610159, AW327868, AI138455, AL138265, AI801591, AA587604, AI732865, AA613227, AI567076, AW419262, AI619997, AA780515, AL048925, AI053672, AW238278, AW340844, AA491814, AI688846, AI375710, AL119691, AW438643, AW193432, AA177061, AI341664, AI379719, AA135842, N71728, AA468131, AI345654, AI471481, AL048626, AI754658, AA665330, AI799642, AI305547, AA947547, AW338086, AI744995, AI801701, AI718446, AW406162, AI177063, AI249997, AA577906, AI246119, AA747276,

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HMWET56	8123	812712	1 - 246	15 - 260	AA947547, F26152, AA502103, AA450199, N43757, AW192154, AI049634, AA365347, AI921649, AA593060, M86058, N70648, AI434706, AA513999, AI358343, AI376100, N71557,

AA723017, AW074059, AI356904, AI564284, TS3607, AI610159, AA714595, AA829106, AA828680, F07193, C18360, C18357, AA310158, AA634227, AI453383, AA503154, AI493217, AI889781, AI367975, AA654771, AI372413, F25135, AW071196, AA503283, AW265294, AA828704, AA372434, AA320748, AI922654, AI821271, AI200051, AA594725, AA328591, AW008952, AI547286, AA338642, AI198376, AI216799, AA528516, AA384502, C19058, AW089789, AA633936, AA678436, F34558, AI285521, N53150, AI956124, AW069481, AA298136, AA358122, AI925556, AA349854, AI951889, AI284640, AI537955, AI583942, AL041368, AA648064, AI921673, AI859251, AI079667, AW088202, AA535661, F29702, AI749559, AA342256, AA649642, AA341228, AA297744, AA301813, AA642060, C05755, AL042213, AA502963, AA551798, AI446464, AA503284, AA584201, AA348929, C06327, AI282832, H64777, AW028400, AI951928, AL042853, AW264959, C17838, AW276817, F01188, F09736, N41759, AI205126, AA715362, AI688846, AA469451, AI971377, AA213741, AI138265, AA318652, AI471481, T28550, AI446601, AW083402, AI264743, AW020340, AI459379, AI653905, AI286356, T96279, AA350859, T07451, AA832148, AA837693, AW080134, F24284, AA190911, F36273, AA653975, AW440976, AI249997, AW236342, AA515435, AW169537, AA300016, AA503947, AF039185, AA100599, AA491284, AA626747, AI053677, AI054063, AA856954, AW275736, AI281697, AI251002, AI962050, AA320113, AA985038, AA515751, AA346458, AI053672, AA569306, AA630925, AA368936, AI821028, AA441788, AA648150, AI821279, AW023672, AW303876, AA593247, AI133723, AA364701, AA557879, AI792518, AL037850, AI859742, AA776936, AI246409, AA776921, AA626678, N66945, AA659083, AA670158, AW249224, AI886365, AW248803, H86860, AA132999, AA083136, AA749274, AA359366, AI281881, AL041382, AF150152, M37551, AP000345, AL008629, U14711, U14712, AP000230, AP000144, AC005682, M62424, AR025392, AC002472, AC005775, AC007664, AC004941, AC004542, AL031123, AC001164, AC005944, AC004263, AC004592, Z95114, AC005250, AC009233, AC004066, AC006275, AC004858, AC004687, AL109984, AC004184, AC004862, AF042090, AF109907, M87916, AP000356, AC006205, AP001172, AC005838, AP000352, AC006464, U73684, L48038, AL031846, AC002301, AC002070, U96409, Z84718, AC006525, AC004783, AL031733, U82668, AC000026, AC003007, AC007536, AL031729, AC002059, AC000075, AC005632, AC005280, AC005696, AL031685, AC004975, AF002996, AC005785, AC002350, AC005866, AC004895, AP000346, AL031965, AC005599, AL031719, A91686, L78833, AC005520, AC008040, AP000299, AC004743, AP000350, AC005251, AC005353, AC005664, Z85986, AC008039, U38667, AC007216, Z75746, AL050318, AC006026, Z99716, U69569, AC008071, AC005041, AC004035, AF003627, AC006160, AL033521, AC004675, AC005341, Z98257, AC002525, AP000353, U47924, AC005217, AC007848, X75335, AL117694, AF030261, AF088219, AL109799, AL022238, AL021368, D83737, AL021977, AC006539, U95742, AL121934, Z86062, AP000045, AP000113, AL132642, M16110, U62292, AL133233, AF002994, I41409, AL109985, AL096707, AF001552, AJ003147, Z83313, AL049643,
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HMWEQ52	8124	728535	1 - 470	15 - 484	AA255655.
HMWEN61	8125	909931	1 - 318	15 - 332	AA909291, AI808906, AW292487, AA828414, AA811421, AA486892, AI282535, AA419482, AI571878, AA436479, and AF020313.
HMWEL56	8126	733583	1 - 250	15 - 264	N51780, AW407881, AI160515, AA400967, and D87447.
HMWEI53	8127	861141	1 - 192	15 - 206	H82464.
HMWEA91	8128	790331	1 - 527	15 - 541	N34786, AI806471, AA570657, AA234475, AA738273, R70183, AA234112, R71398, and AI927958.
HMWEA10	8129	968105	1 - 574	15 - 588	AI378834, AA232793, and AA232649.
HMWDZ25	8130	678724	1 - 213	15 - 227	T83764.
HMWDR15	8131	660522	1 - 404	15 - 418	T06969, R27224, and AB028962.
HMWDP06	8132	935903	1 - 174	15 - 188	
HMWDN60	8133	974425	1 - 363	15 - 377	
HMWDH55	8134	732304	1 - 435	15 - 449	W84769, AW136382, AA009763, and AC004522.
HMWCT43	8135	715575	1 - 471	15 - 485	T81746.
HMWCR88	8136	955258	1 - 326	15 - 340	N94798, and N94764.
HMWCH47	8137	720581	1 - 356	15 - 370	R11783.
HMWCH04	8138	615628	1 - 602	15 - 616	N40606, N29201, H96518, N27833, AI925321, AI926681, AI860677, AI244758, AW272794, AA984191, AA826144, AI886060, AL044590, AI886365, AA987962, AA528441, AL039187, W90237, AI090334, R54896, AI079423, C16699, AL046746, AI954525, AA181773, AA206807, R59567, AI446601, AA507837, AW024210, AW152611, AA769114, AI305258, AW075915, AA729264, AL038936, F32893, AA832130, AL038909, AI471418, AI073888, AA196390,

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HMWCG38	8139	851630	1 - 598	15 - 612	N58418, AA034158, W74493, AW006009, AA015719, AA780267, AI445745, AI056261, W79090, AA400216, N78008, AI937396, AI191881, W73497, W23486, W67606, AI564573, AI374806, AA293838, AI097007, T95431, AA603085, AW295073, AA127181, AI122613, N26542, H84552, N39425, H55969, AI697129, T78468, AI090556, AA564396, AA748523, AI268509, N64022, AI168016, AI080325, AA053402, N48541, AA694390, AA651930, AA400127, W67558, AI268614, AI369805, AA450021, W69403, AI261755, W73515, T78545, N95084, AA618523, AA772633, R10577, AA327219, AA211289, AA302701, AA705259, R19400, AI924654, N73360, AA280628, R11610, AA846680, AW265361, R10576, AW023512, AI000971, C15592, R57045, AI085385, AA767586, AA830670, AA843900, AI817930, AA648329, AI143166, AA625706, AW385518, AA744945, AA383319, N89865, AI219903, AA403263, AA890669, N28373, AI091949, AI458483, AI299215, AA865342, AI052655, AA227192, N90503, AI041241, AA890424, AA056457, AI865626, AW265454, N53860, AI708757, H55970, AI547137, AI541216, AI535787, and AI132931.
HMWBZ89	8140	787111	1 - 357	15 - 371	H49239.
HMWBT59	8141	893995	1 - 274	15 - 288	AA368664, AL043880, R62399, AA523876, AI915189, W05294, AA423981, AW339362, AI056132, AI873659, AI636417, AI812097, AI274942, AI349372, AA922395, AI168791, AW083986, AI266219, AI859189, AW194157, AI683304, AI199896, AI269181, AI625514, AI199890, AW130160, AA128362, AI338926, AI288535, AI339682, AI114897, AI091057, AI671452, W90768, AA810411, AA114896, AA137033, AA528033, AI743815, AW005102, AA523117, H48227, AI886641, R38443, F05074, AI680503, AA938005, AI862000, AW204921, R62400, AI305176, W90701, AI990810, F08811, H79690, AI023431, F04534, and T05279.
HMWBT05	8142	932558	1 - 461	15 - 475	N20587, AA225583, AI391633, N28979, AI620540, AI601267, I124714, T49309, AA225604, AA987298, U73643, AL136842, X57796, and AB016226.
HMWBI77	8143	888862	1 - 533	15 - 547	
HMWBI40	8144	712730	1 - 603	15 - 617	T80378.
HMWBIH29	8145	927321	1 - 625	15 - 639	T74339, AA007592, W90626, AA680304, AA954254, AI133697, W60511, AA007389, AA767198, AA143074, AA987383, AA313708, F12509, Z44513, W90249, AA827641, AI141189, AA401334, AA747585, F25999, AA575866, AA313726, F22587, AA730678, AA664969, F33617,

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HMWBG16	8146	859404	1 - 200	15 - 214	AA398006, and AI650862.
HMWBB42	8147	714114	1 - 484	15 - 498	R11451, and AA018329.
HMWAJ04	8148	586507	1 - 740	15 - 754	AA558616, AA578017, AA558697, AA578251, AI053465, D29241, AA649705, AA595825, AA810370, AA127636, AA713922, AA523815, AA304977, AA346575, AA834755, AA970213, AA451990, AA557970, AA341336, AA336362, AA574110, AA649722, AA483731, AA973803, AA515435, AA719080, AA078691, AA644207, AA446657, AA524838, AA559290, AI446638, N52544, AA077817, AA259186, AA161083, AA484670, T49241, AI205126, T16056, AL046457, AA487858, AA280632, R83443, AA461233, AA804379, AA720691, AA670468, AA503473, AA634145, AA847984, W56203, AI355238, R29012, AA678772, AA602528, AA876314, AA626747, AA513972, R95704, AA134959, AW083402, AA582911, AA480790, AA663486, AA522942, T15897, AA584751, AA873560, AI890918, R97634, AA605032, AA721615, AA996214, W05364, AA215474, AA845843, AA988259, AI471481, AA721981, AA252263, T10560, AA578349, T03722, AA437161, AA233519, AI037914, AA910125, AA078537, AA450089, AI041499, C14793, AA678443, AA559305, AI284640, T36219, H64778, T08438, AA678499, AA308806, N55273, H10994, AA330380, AA613421, AA350859, AA826793, AA209164, F19258, AA644551, T86755, AA196796, AA838096, AA525824, AA325699, R38154, AA834622, T54108, AA630606, AA780797, AA516527, AA486885, AA491284, AA102006, AA358321, AA703707, AA525876, N46153, AA194761, W80462, AA525249, F23249, AA551201, AA806796, AA323749, AA788858, AA527958, AA825455, AA665021, AA521355, AA533092, AA586562, AA167643, AW167267, M77899, T94075, F36273, AA492166, AA134347, AA206935, AA059472, F35659, AI567577, AA578141, AA525151, AA572713, F01658, F01141, AA552885, AA550758, AW236342, AA601222, AA837718, AI023082, AA593359, AA095511, AI648558, AA810269, AA357552, AA714055, AA491437, AA342901, T71030, AA650271, N69316, AA749274, AW088058, F10081, F29989, AA523020, AA302963,

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HMVDZ11	8149	966351	1 - 530	15 - 544	R83823, and AA157678.
HMVDV55	8150	811616	1 - 397	15 - 411	R56378, H05003, and R83285.
HMVDQ02	8151	919057	1 - 342	15 - 356	AA663501, AA862536, AW265642, and AW275747.
HMVDL45	8152	717384	1 - 827	15 - 841	H09382, R17471, Z44450, and F07290.
HMVDI60	8153	877124	1 - 774	15 - 788	N46872, AA046610, AI589041, AI638264, AI888302, AW206234, AW135977, AI580058,

					AI657127, AW002540, AI660025, AI623109, AI381671, AW150855, AW206029, AW205466, AI973077, AI973087, and AI675515.
HMVDE10	8154	861184	1 - 730	15 - 744	AA460638.
HMVCY89	8155	786651	1 - 504	15 - 518	R11102, R11103, H47988, H81110, R11125, and AC005611.
HMVCY14	8156	657801	1 - 461	15 - 475	T96219, T79232, T96458, AF157101, and AF025884.
HMVCG26	8157	681174	1 - 354	15 - 368	R25770, AA249108, AI741586, and AC002519.
HMVBY77	8158	771974	1 - 563	15 - 577	T65331, F111774, F111773, AI364568, AA557911, R17490, AA196160, R10144, T60316, AA493829, AA150013, AA806789, AW151637, AW151645, AW151646, AI139971, AW249468, AA714190, AI624666, H81732, T56025, AI567148, AA363957, AA226679, AA484191, AI678754, AI360630, AI281401, AA515440, N63891, AI538106, AI273990, AI933478, AA434078, W67486, AA565319, AW023515, AI242432, AI242531, W87421, AI814959, W67485, T93105, AI689198, AA516058, AA599080, F25580, AA525332, AI149238, AA581317, AI300054, AW236163, AI823533, AI823535, R51582, AI933486, AA837325, AI421723, AA601265, T64444, AW084431, AA584635, H53189, AL119156, R92658, AL119182, T05617, AA361513, AA742764, AI254463, AI252005, AA564682, AW028834, AA601673, AI038977, AI299192, AI909229, AA613850, AA586433, AI869786, AI891075, AW058223, AA159006, AC006479, AC004859, AC004921, S68013, AC005531, AL008719, AL021528, AC006509, AC007738, AF001550, AC005217, AB023050, AF035968, AC000037, AC000032, AC004671, AC004491, AC007868, AL031005, AC004914, AC005609, AC005903, AC005327, AP000499, AB026898, AC012085, AL133163, AL049766, AC003689, AL031584, AC002347, Z84572, AP000556, AP000552, AL132987, AC006960, AL078581, AC005216, AF003529, AC004477, AC006006, AL035423, AC000035, AB020865, AL031276, AC004692, AL031230, AC000025, AC005527, AC008134, AC007917, AC005529, M76423, AC005952, AC004472, AL049631, AL121757, AC008372, AL049795, AL032821, AC005669, Z68284, AC007955, AL133238, AL049832, AC003690, Z92546, AP000010, AP000151, AL022162, AL135783, AL008630, AL023799, Z49866, AC004054, AL117355, AC007386, AC006121, AC005280, AL049776, AL031602, AP0000245, Z69890, AC006541, AC005391, Z99297, AL096817, AC003983, AC005208, AC004000, AL022396, AC005484, Z97054, AC007384, AC009731, AC005821, AC005730, AL021939, AD000864, AF024533, Z83838, AL031985, AL049697, AC005088, AC000065, AL050341, AL031735, AL133245, AC007065, AC006312, AL109827, AC007025, AC005694, AP000171, AC004217, AL034402, AC006454, AL022241, AL117338, U72790, AC006020, AC004262, Z82901, AC004736, Z97181, AL121595, AC007276, AL021391, AC002476, Z54146, AP000298, AC005513, AF039907, AL023694, Z82190, AC004764, AC005255, AP000112, AP000044, AL109623, AL078604, AC002039, AC003015, AL021940, AC004912, AC005094, AC005089, AF134726, D84394, AC004805, AL135744, AP000689, AL022320, AL022318, AL023876, AC007285, Z81364, AC007314, AP000282, AP001054, AC005081, AC007731, Z99716, AC004616, AL078638, U95090, AC005841, AL021368, Z83839, AC006116, AC018633,



HMVBV16	8159	661692	1 - 584	15 - 598	AP000264, AP000279, AC006237, AP000130, AP000208, and AP000247.
HMVBUB9	8160	786118	1 - 440	15 - 454	AA195746, AW292535, W88512, AI916149, and AA765346.
HMVBO83	8161	780366	1 - 870	15 - 884	R18969, and AA491495.
HMVB91	8162	790025	1 - 506	15 - 520	AA028167, AI700675, AA035731, AI051312, AW207134, AI377083, and AI914607.
HMVB9F52	8163	726546	1 - 435	15 - 449	AA973466, and R31969.
HMVB9F44	8164	716410	1 - 372	15 - 386	W39569, AI638849, AI038503, W44924, AI203113, and AI864025.
HMVAT54	8165	888180	1 - 695	15 - 709	AA676928, and W86985.
					AI199183, AI799706, AI524226, AI658678, AI619916, H17863, AI679819, AA767653, AI567123, AI679743, AA993496, AI249113, AA846599, AI290066, AW168928, AA421148, AW001228, AI923054, W89146, AI358091, AA599007, AA969775, AA564967, AI696808, AI805502, C14005, F10215, AI860759, AA058367, AA705404, AA593588, AA581976, AI889279, AA700339, AI884486, AA350860, AI554646, AA447998, AI003564, AI860478, AI804832, AA206837, AW169777, AA887749, AI866503, AW193525, AA576924, T89112, AI277898, AW295179, H61752, AI214409, AA581255, T61678, AI701266, AA715116, AW067953, AA887759, AW188721, AA523949, AA652622, AA527474, T53110, AA402926, AW087438, W35420, AA206937, T49466, AA570117, T73430, AA548627, AI884326, AA448141, AA773851, H29750, and T53109.
HMVA152	8166	726515	1 - 432	15 - 446	H13903.
HMVAP56	8167	732985	1 - 501	15 - 515	AA128982, AI149641, AI962865, AI871879, AI346313, AI024604, AA743300, AA293701, AA292933, AI470661, R40595, AW303434, AA833709, and AW005730.
HMVAF71	8168	761400	1 - 364	15 - 378	R59687.
HMVAF52	8169	861210	1 - 439	15 - 453	R53772.
HMVAC67	8170	751600	1 - 797	15 - 811	N72471, T80710, and AC009320.
HMSPH53	8171	861245	1 - 406	15 - 420	AA635986.
HMSPE04	8172	926800	1 - 788	15 - 802	AI056701, W60140, N36147, AI478510, AA181306, AA187045, C14014, T74524, AA828045, AA127426, AA487209, AI923052, AI356440, H07953, AA298365, AI254779, AA477503, AA757426, AW275498, AW438539, AA809546, AW084445, AI753092, AA657835, AA613630, AI051037, AW302711, AA581525, AA525823, AA879053, AI890324, T96582, AA593828, H51061, AI583106, AI377161, AI345891, AA164891, AA484892, F23338, AA745383, AI355103, AA074143, AA375133, AI311276, AA701080, AC008038, U85195, AE000658, AC005921, AC009247, AP000115, AC006953, AC006057, U91326, AC005231, AC004531, AC003982, AC007371, AC005180, Z94802, AI078621, AI121655, AC004217, D00591, AC006312, AC005399, AC002056, AC004447, AC002550, AC005722, AF002223, AC004962, AC004890, AL135960, AI131016, AL022476, AI109798, Z84466, AC005288, AC004216, AL024498, AC005081, AC000082, AC007228, AC007308, AL133163, AL050332, AL050348, AC004158, AC004817, AC002544, AC006211, AC002470, AP000032, AF015262, AL022322, AC004491,

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HMSPA30	8173	861265	1 - 491	15 - 505	AA005143.
HMSO028	8174	861287	1 - 460	15 - 474	AI890285, AA853569, D87435, and AF068755.
HMSO188	8175	861292	1 - 588	15 - 602	AA179756, AC007842, and AC006312.
HMSO101	8176	915084	1 - 779	15 - 793	AA449866, I164299, AA760923, AI243157, AI537197, AA807264, AA810059, AA490995, AI186126, AA810429, AW188231, AI917502, AI076044, AW016048, AA131996, AA724113, AA131830, AA741064, AA737445, and AB020677.
HMSOH03	8177	922828	1 - 743	15 - 757	R60302, F06228, R18381, AW378532, AA635310, AC004851, AC005529, AC004887, AC004813, AL022319, Z84484, AC002115, AL022316, AC007842, AC004874, AC004967, AL031428, Z77249, Z95116, AL034429, AC005015, AC005594, AC003041, AP000071, AC006388, AC010209, AC004216, AC003101, AC005527, AL121825, AC004794, AC005592, AC007425, AC005251, AC010206, AC008119, U91321, AL049576, AC006536, AL049631, AC002312, AC004526, AC004223, AC005041, AL020997, AC006241, AC000379, AC004859, and AC004913.
HMSNP06	8178	934161	1 - 424	15 - 438	AI362898, and AB007866.
HMSNG04	8179	926845	1 - 418	15 - 432	F23240, and F34475.

HMSMY10	8180	963431	1 - 418	15 - 432	AA694078, and T85377.
HMSMW91	8181	861336	1 - 117	15 - 131	AA677723, and AA376375.
HMSMW64	8182	861338	1 - 710	15 - 724	AA489878, AA773463, AA828637, AA613232, AA626040, AI580250, AA640710, AI932599, AA507822, AA559241, AI912401, AI933714, AI457389, AA633798, AA502683, AA515048, AA532116, AA157845, AI500453, AA714282, AW073510, AA581247, AI350211, AA146595, AA832145, AA146578, AA760808, AI022554, AI439910, AA837035, AW302013, AI783911, AI570943, AW090144, AL044471, AA452887, AA410828, AI056177, AA493226, AA501794, AI434695, AA847499, F08248, AA487726, AA564779, AA548040, AI524360, C15363, AI216151, AA779783, N58329, AW193265, AW275719, AL043105, AW021583, AA877992, AL048925, AI347810, AA228778, AW265735, AI471572, AA580808, AI017251, AI554471, N71033, AI244127, AA515133, AA229912, AI471691, N72524, H58354, AA405493, AA651639, AI923052, N95817, AW069769, AA630854, AW338179, AW438643, AA862243, AI002734, N64587, AI620585, AI561116, H07953, AI270476, AA666295, AI382825, AI004591, AA489806, AA302973, AA084609, AA410788, AI888468, AA749235, AA613627, AA532700, AL079734, AA904275, AA262752, AI674840, AA586661, H85792, AA491814, AA496927, AI580707, AI915293, AI355803, N22037, AA908431, C14967, AI284640, AI252506, AI356440, AI805535, AI805350, AA806796, AI186438, AA302327, AA491955, AA464739, AA569471, W02403, AW272294, AW163763, AA721158, AA658362, AI377413, AA488746, AI049643, AC000003, AC005763, AL035422, AC004967, AC005225, AC005619, AC010205, AC005409, AC004491, AL080243, AP000512, AC004963, AC005399, U91323, AC005808, AC005531, AC006276, AL109801, U78027, AC004585, AP000501, AC006449, AC010170, AC007546, AC002558, AL035587, AP000513, AC004209, AC007193, AC002319, AC005069, AP000510, AL049869, AC004598, U73636, Z97054, AL034420, AC003108, AC002350, AL031291, AC006275, AL133448, AC005274, AC004913, AC003030, AC007308, AC005305, Z82206, AC005330, AC004878, AL117354, AC004832, AC005175, AL035398, AC005412, AB014077, AC002369, AL049699, AP000236, AC007151, AC005231, Z98051, AC002425, AC004655, AC004774, AL031311, AL121658, AD000092, AL031848, AC000134, AL031427, AL049576, AL079340, AL008635, AC002996, U62292, AC004228, AL109847, AC005740, AC005919, Z93023, AC007226, AP000173, AC004686, AC004590, AC005914, AC004876, AL034553, AC007993, AL008582, AC004382, AC002492, AL022312, AC007227, AC004149, AC006023, AC005971, AF045555, AF045533, AC004049, AF047825, AC004797, AC007842, AL035685, AC002115, AL022724, AC005200, U91326, AC004099, U63721, AC006121, Y18000, AC005067, AL031685, AL031283, AL034429, AL023575, AL022165, AC006317, AL109984, AL109798, AC005253, AC007030, AL049776, AC004859, AC007565, AC007036, AC007229, AC006285, AP000091, AC002351, AC005736, AL031186, Z95115, Z83826, AC005512, AL079333, AC002395, AC005952, AF107257, AF111169, AC007792, AL035462, AC007435, AL049569, AC005086, AP000289, AC006430, AC007055, AL049540, U85195, AB023049, AF038458, AC004447,

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HMSMO59	8183	861341	1 - 595	15 - 609	AA132854, and AA132760.
HMSMN71	8184	927097	1 - 635	15 - 649	AL114712, C06057, AA873553, AW439714, AA488984, AA758246, AL379212, AL038707, AL565960, AA313336, AL039448, N70571, N24921, W04529, AA648488, AA576689, AA857397, AA452806, AA016215, AA843067, AA021506, AA834369, AA946685, R74086, R47997, AA887520, Z17365, AA450285, AA037649, AA805193, R53996, AA749374, AA736873, AA865979, AA932132, M85870, AA515596, AA936679, AA716202, AF176069, AF177345, and AF177346.
HMSMN26	8185	861345	1 - 489	15 - 503	W01688, AW271556, T92856, AL008627, AC005295, AC003109, AC005003, and AL133485.
HMSLH07	8186	953390	1 - 168	15 - 182	AA483479.
HMSKQ08	8187	861372	1 - 513	15 - 527	
HMSKI124	8188	495770	1 - 562	15 - 576	
HMSJX84	8189	783032	1 - 484	15 - 498	H10256, T16964, and F07075.
HMSJW48	8190	852496	1 - 2155	15 - 2169	AA411943, AW195769, AL020989, AL034451, AC004129, AL109956, AC003001, AC006143, Z99571, Z83841, AL033397, AL109733, AL031779, AC006924, Z96811, AL049859, Z78022, and Z83822.
HMSJU80	8191	775416	1 - 546	15 - 560	T87122, T77586, and W03662.
HMSJQ40	8192	954003	1 - 380	15 - 394	N21479, AA133872, AL167354, AA129368, N74537, W56424, H99653, AA297666, AW341978, AA365042, AL473995, AL038842, AA503298, AL073373, N57365, AL561060, AA833896, AA833875, AA832444, AA765925, AA482953, AW020150, AA136122, AW070892, AA503119, AC008041, Z82203, AC007285, AC007542, AC005529, AL049557, AF207550, AC005081, AP000497, AC006312, AC005015, AC004859, AC006441, AL049758, AC005971, AL049709, AF196779, AL080243, AL021707, AC005037, Z84484, AC002477, AL031005, AC005914, AC004929, Z98304, AP000692, AL121603, AC003689, AC002312, U47924, AL021394, AL049843, AC004938, AF109907, AC005519, AL049832, AC003982, AC005527, AC006210, AF111168, AC006101, AC006120, AC006013, Z98946, AP000510, AF111169, Z84469,

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HMSJO72	8193	465884	1 - 256	15 - 270	R10535, and AP000555.
HMSJO43	8194	715274	1 - 50	15 - 64	
HMSJM02	8195	920070	1 - 1079	15 - 1093	AA191493, AA190859, Z25142, AA063296, and AA190753.
HMSJL53	8196	921263	1 - 420	15 - 434	AC003046, and AC005859.
HMSJU22	8197	495774	1 - 569	15 - 583	U46128, A30438, I25947, L40401, and AR040601.
HMSJI78	8198	772846	1 - 461	15 - 475	AA190926, and AA731652.
HMSJD56	8199	868168	1 - 454	15 - 468	AA286875.
HMSIZ49	8200	973806	1 - 633	15 - 647	AW360811, AW177440, T03269, AW377672, AW375406, AW179328, AW366296, AW375405, AW378534, AW360817, AW360844, AW179332, AW179023, AW178905, AW178893, AW177731, AW352171, AW378532, AW377671, AW177501, AW177511, AW352174, AW179024, D58283, C14389, AW179020, D59859, D80022, C14331, D80166, D80195, AW352158, D80193, D59927, D59467, D51423, D59619, AW178775, D80210, D51799, D80391, D80164, D59275, AW178762, D80240, D80253, D80043, D59787, D80227, D59502, AW377676, D81030, AW352170, AW178907, AW178908, AW360841, AW179019, D80212, D80196, D80188, D80219, AW176467, AW177505, C15076, D80269, D80045, D80038, D57483, AW177722, D80366, AW369651, AA305409, C14429, D81026, D50979, D50995, D59889, AW178754, D80024, AW178909, AW177456, D51250, AW179004, AW179329, AW378528,

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HMSIW04	8201	465835	1 - 815	15 - 829	N62914.
HMSIU74	8202	765600	1 - 365	15 - 379	H86211, and H63108.
HMSIT32	8203	699241	1 - 506	15 - 520	N50056, and AA578534.
HMSIT28	8204	686663	1 - 326	15 - 340	T15530, and H14968.
HMSIP20	8205	669671	1 - 339	15 - 353	T63454.
HMSIP02	8206	920079	1 - 390	15 - 404	A1086180.
HMSIK04	8207	615218	1 - 339	15 - 353	AA252623, AA282769, AW169739, AI167434, AI038266, AI240380, AI608954, and AA602286.
HMSIB06	8208	935151	1 - 1310	15 - 1324	AA704174.
HMSHV11	8209	967007	1 - 324	15 - 338	AA506376, and T56128.
HMSHU68	8210	753038	1 - 499	15 - 513	N98756, AW015695, AA600174, AA599043, AI816903, AI963142, AA744590, AI142122, AI077980, AA989061, C01589, AC006946, and AC005300.
HMSHU37	8211	495778	1 - 265	15 - 279	AL031670, and AC004650.
HMSHT11	8212	967068	1 - 503	15 - 517	T02871.
HMSHO45	8213	717808	1 - 357	15 - 371	R84684.
HMSHI09	8214	709471	1 - 723	15 - 737	AA035379, AA035378, AI494330, H86195, AA056312, and R84260.
HMSHI61	8215	741834	1 - 1336	15 - 1350	H39805, N78668, H85323, W15175, AA256969, AA257077, H39806, AA059102, AA248862, AI608660, and AB007883.
HMSHG08	8216	959461	1 - 383	15 - 397	H45658, AC010205, and AC005409.

HMSHG06	8217	935496	1 - 412	15 - 426	AI873505, and AA868211.
HMSHE81	8218	784966	1 - 418	15 - 432	AL047194, R30808, AA127970, R21308, W49550, H11154, AW059635, AA133838, T96201, AI346495, AA046957, R52207, AA338045, W20506, T79356, AA344786, AA063363, W37522, R60470, R35905, T31941, AA203250, W68832, AA776637, AA340352, T34581, T35500, AA075388, T34053, AA337298, T99002, R11376, T31786, Z45899, T35531, H93460, F12241, T72052, T65262, U46386, T35164, AA374730, AA374708, AA228152, N99666, R60632, N44853, W05464, W38978, AA171804, AW372268, T18906, AA094785, AA707543, R32548, R82030, AW372267, T40014, W16937, AW363301, AW392423, AW161265, R31331, AA093953, AA313024, AW352224, AF062483, AF034546, Z98742, AF062482, and AL078596.
HMSHE17	8219	662265	1 - 855	15 - 869	T79224, T79733, AI878808, AI878839, AW160501, W27440, D59610, AW361175, T03269, D80241, D80193, D59502, D59467, D58283, D80166, D80195, D59927, D51423, D59619, D80210, D51799, D80391, D80240, D80253, D80043, D80227, D59859, D80212, D80196, D80188, D80022, D80219, D59275, D81030, D57483, D80269, D80038, C14429, D59889, D59787, AW178893, D80366, D50979, D50995, D80164, D80024, D80378, D80045, D51250, C14331, C15076, C14389, C14014, AW378532, C75259, D51060, AW177440, AA305409, AW179328, AW178775, AI905856, AI910186, AW352158, D81026, D80134, AW177501, AW178762, AW177511, F13647, D51097, D51022, D58253, D80949, D80522, AW360811, AW176467, C14227, AW352117, AA285331, AA305578, D51079, D81111, D59695, AW375405, AW378540, AW179023, AW377671, AW179332, AW360834, D80251, D52291, AW366296, AW360844, AW179220, AW360817, D80248, AW375406, AW378534, AW377672, AW178905, AA514188, AW177731, AW179024, AW179019, AW352171, AW377676, D80064, AW352170, AW179329, AW178907, AW179020, AA514186, D80133, AW177733, AW178906, AW179018, AW177505, AW360841, AW178909, AW177456, AW178980, AW378528, AW178908, AW178754, C05695, AW367967, D80268, AW179004, D80302, AW178914, AW378525, AW352174, AW178774, AW178911, AW378543, AW352163, AW177728, AI557751, D80014, AW352120, D80132, D80439, D80247, T03116, AW178781, T48593, AW178983, T11417, AW177723, AW367950, AW378539, D51103, D80157, D51759, AI557774, AW178986, D80258, C06015, D45260, AW177734, AW378533, D80314, AA033512, C03092, AA809122, AW378542, H67854, H67866, AW360855, AI525917, AI535850, Z17814, AI525923, D58246, D59317, C14975, AA514184, D59503, C14973, D51221, D59474, AI525920, AI535686, AI525913, D58101, C14046, AI525227, AI535959, C05763, AB020721, X67155, Y17188, A78862, A67220, D89785, A84916, A62300, A62298, AJ132110, D34614, D26022, A25909, D88547, X82626, AR025207, AR018138, AB012117, X68127, AF058696, Y12724, AR008278, A85396, AR066482, A44171, A85477, I19525, A86792, AB028859, X93549, U87250, A94955, AR008443, I50126, I50132, I50128, I50133, Y09669, AF135125, A30438, AR066488, A82595, AR016514, AR060385, AR060138, A45456, AR066487, A26615, AR052274, A43192, A43190, AR038669, AB002449, D88507, AR066490, A70867, D50010, Y17187, I18367, AB033111, AR008408, A63261,

HMSHD80	8220	882700	1 - 1135	15 - 1149	<p>AR064240, AR016691, AR016690, U46128, AR062872, D13509, A64136, A68321, I14842, AR054175, AR060133, AF123263, U87247, AR032065, AR008277, AR008281, AB023656, U79457, Z32749, and X93535.</p> <p>AL079812, AI679782, AW069510, AA631363, AA806796, AI802087, AA680243, AI732120, AI791227, AA846568, AI298710, AW079792, AA595782, AI580652, AW103758, AI589230, AA553666, AA453558, AI358343, AW276586, AW022379, AI859251, AI561060, AI499938, AA587604, AI144101, AI198376, AI754170, AI345518, AI370074, AI610159, AA488395, AW265009, AI370094, AI313166, AI439210, AW406162, AW069412, AI246409, AW265385, AW268973, AI567076, AW070892, AI718446, AI345654, AI821271, AA372478, AI754955, AI653636, AI358571, AA584752, AA630352, AW276817, AA302963, AI564454, AI471487, AI334464, AI344812, AI866964, R97780, AI628922, AI956131, AI798265, AA226715, AA542991, AA584145, AA702729, AA523843, AW075511, AA309841, AW020992, AA630925, AA491284, AA984708, AI345418, H71429, F36306, AA679672, AI421841, AI283911, AA563733, AA704393, AI287485, F29989, AI536834, AA133333, AI635274, AW168342, AW088202, AW338500, AI679045, AW327868, AA938105, AW406659, AI986165, AI367975, AA846876, AA059235, AA469451, AI951889, AA630362, AA525190, AI134972, AW407578, AW089322, AA508359, AA133406, AI635609, AA688130, AA654771, AI654247, AI866856, AA214342, AA864426, AL043144, AW407632, AI888518, AI216799, AI951928, AI828463, T08638, AL044858, AW304805, AA653618, AA827981, AI307608, AI301273, AI635279, AA601253, AA143516, AA101689, AL134439, T57119, T09071, AA483223, AA679936, T41242, AI732186, AL119691, AA579075, AA709005, AI246119, AA346458, AW302013, AW079135, AA496508, AA443390, N26226, AL037554, AL046898, AA381163, AI572924, AI334443, AA503475, AA478355, AI475569, AA156538, AI049634, W00807, AA598586, AI471691, AA503283, AA614070, T06783, AA837746, AA650376, AI087133, AI289447, AA531372, AA493708, AA148197, AI982525, AA533725, AA722048, AA457592, AI471464, AA523838, AA502963, AA598425, AI284640, AA569214, AC005288, AL078463, AC005754, AC006312, Z99716, AL035681, AC005822, AF088219, AC004675, AC002091, AC005736, AC006064, AC002395, AC005399, AL049795, AC005231, AC007676, AC005209, AL121653, AL031311, AC004000, AL133448, AL022476, AC002350, U52112, AL080243, AC005924, AB000882, Z96074, AC006277, AC005527, L78810, AC004139, AL031680, AC006251, AC006120, AC004876, AC000353, AC002301, AC006241, AC002543, AL034548, AC005562, AL096791, AC004671, AC002040, AC005011, AC005520, AC005828, AC005215, U62317, AL035659, AL133371, AL021393, AC005694, AC005529, AL008718, AP000131, AP000209, AC000052, AL133246, AC007191, AP000248, Z95114, AP000359, AC005291, AC009516, Z99129, AC002073, AC004858, AC006057, AC005900, AC008079, AC005031, AP000553, AP000506, AC004966, AC004236, AC018633, AL031255, AC010205, AF109907, AC002115, AL023803, AC006948, AF111168, AL109798, AC008040, AC007055, AL034420, AC007226, AC007919,</p>
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HMSHB81	8221	777946	1 - 682	15 - 696	W07507, N81144, C01673, and AC007298.
HMSGX86	8222	793163	1 - 310	15 - 324	
HMSGF56	8223	733562	1 - 365	15 - 379	T87391, and R94130.
HMSGF54	8224	730823	1 - 555	15 - 569	AA075407, and AA829024.
HMSGF51	8225	761922	1 - 573	15 - 587	AL628560, AL628570, W52594, H115987, AA314350, AA081556, AA449562, W48833, AA340229, W19356, H16913, AA309056, R18554, A1460069, T80286, AA384328, AA318911, R12855, and AC006033.
HMSGD24	8226	677337	1 - 416	15 - 430	N62538, and N62572.
HMSGC85	8227	783608	1 - 825	15 - 839	AA585378, AL526112, AA585325, AA585278, AA58389, AA585430, AA585329, AA283312, AA585439, AA585116, AA585098, AA585356, AL525306, AA585453, AA585420, AA585101, AA585327, AW366296, T26367, T48593, AL541402, D78224, D57491, T18597, C15406, R29657, AA585198, Z32887, D59751, C15069, Z32822, D53161, AA585155, AL526205, D54850, R45895, D61185, AA585351, AL526169, Z33559, D51433, AL557718, AL525316, AL541356, AL557262, AL541365, AL557864, D59458, AL526078, AL526146, Z36724, AL535660, D51413, AL525500, D50992, AL526016, AL526158, AL526140, AL546855, AL557740, AL535639, Z28355, AA486970, AL557809, AL557731, D54897, AL541535, AL546831, AL421391, AL541013, AL541492, AL541205, AL525556, AL557533, AL525168, AL557727, AL540903, AL546971, AL526187, AL536138,

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HMSFY63	8228	745230	1 - 448	15 - 462	W96346.
HMSFX73	8229	888326	1 - 170	15 - 184	
HMSFS08	8230	959773	1 - 408	15 - 422	AI016389.
HMSFR23	8231	919890	1 - 1974	15 - 1988	<p>AA508809, AL038606, AA574442, AA879053, AI678785, AI244127, AI805607, H05940, AA904275, AW069227, AA610509, AA191418, AW271917, AW341978, AI537020, AI885572, AW299781, AI753113, AA635368, AI623764, AL048607, AA180775, AW157492, H80203, AI634187, AI625604, AI040051, AI270524, AI251576, AW089950, AW338370, AA225406, AW270256, AW068316, AI051037, AL040054, AI783911, AI559645, AI583466, AA720732, AI205181, AI590458, AW274191, AI306232, AI768952, AI270476, AI061313, AA601986, AA533176, AA749235, AA525253, AI457313, AI869786, AA634786, AI569510, AI635028, AW272294, AI634691, AA777986, AW419389, AA582554, AI431513, AI590499, AA657835, AW188662, AW157005, H53168, AC005694, AL034420, Z85987, AL031005, AC005527, AC005682, AC005940, AL050318, AL096791, AC006501, AC005736, Y18000, AC002310, AP000503, AC006449, AC002558, AC005972, AC002059, AC003029, AC008984, Z97054, AC009516, AC006468, AC005778, AL035683, AC007684, AC005500, AC002314, AL049694, AP000088, AL031311, AC004019, AC006285, AP000512, AL133448, AC002316, AL022316, AL121653, AL049553, AP000692, AL050332, AC005529, AP000359, AP000152, AC004253, AC007731, U47924, AC005520, AC005399, AL021397, AC005755, AC005041, AC004531, AL035413, AC003982, AC002073, AC005180, AC007919, AP000248, AC004112, AC000025, AP000133, AP000211, AL035079, AC007999, AC005231, AC005874, AF134471, AC000052, AC002470, U80017, AD000092, AC005212, AC007055, AC007993, AL096701, AC009247, Z98036, AL133355, AC005899, AC008012, AF207550, AC006130, AC006017, AC005722, AL050312, AL034555, AF200465, AL031685, AC006211, AC005482, AC002115, AP000555, AF134726, AC007387, AB023049, AC007308, AC004477, AC006480, AC004985, AC004520, AC003041, AL080243, AC002312, AC005102, AC005049, AC007371, AC004913, AP000553, Z68870, AC005255, AC002350, AC002301, AC002543, AP000502, AC004865, AC004466, AC007845, AL117258, AC005225, AL022721, AC006512, AC004526, Z86090, AC004832,</p>

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HMSFN08	8232	959774	1 - 294	15 - 308	AI611315.
HMSFN68	8233	753635	1 - 137	15 - 151	
HMSFN13	8234	384695	1 - 209	15 - 223	
HMSFN08	8235	960147	1 - 530	15 - 544	
HMSFN34	8236	706366	1 - 352	15 - 366	T87975, T78968, H75882, AA186627, AA157874, AA155657, and AC005632.
HMSFN64	8237	842040	1 - 186	15 - 200	H60137.
HMSFN67	8238	751865	1 - 221	15 - 235	AA452398.
HMSDQ15	8239	660654	1 - 262	15 - 276	H48662.
HMSDL70	8240	909997	1 - 417	15 - 431	AA937295, AA749017, AI961060, AW296060, AI560436, AW137661, AI952999, AA837074, H14097, AA058658, AA058632, D17577, AB023656, AF131865, and AF090190.
HMSDK10	8241	968435	1 - 152	15 - 166	N56866.
HMSDI34	8242	559991	1 - 315	15 - 329	
HMSDG12	8243	574950	1 - 339	15 - 353	H51539, AI818853, AW008155, AI915439, AA113960, N25429, AI539019, AI090837, AI269976, AW183489, AA705828, AW028222, AI085311, AW057893, AW025905, AI817383, AA627364, AI807821, AI807831, AL134858, AA570019, and AC005786.
HMSDG04	8244	927804	1 - 352	15 - 366	AA526542, H38817, R54896, H25626, AI174535, AA516247, R71981, AA641112, AA745524, AA744001, AA524616, AA506744, AA744272, AA744455, AA745588, AI624990, AA743966, T34066, AA729470, AA779667, F07193, AI683294, H97358, AA364869, AA804625, AA830910, AW246879, R91911, AW238325, AA700569, AW081359, AI863246, AW102955, AA035676, AA251117, AW062759, AI241637, R13151, AI123488, AI636306, AI024782, AI188049,

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HMSDB08	8245	960260	1 - 611	15 - 625	AI694133, and AC005661.
HMSDA81	8246	778469	1 - 362	15 - 376	AA846610, W32521, and AI089044.
HMSCY01	8247	921768	1 - 387	15 - 401	R86918.
HMSCW45	8248	723483	1 - 274	15 - 288	AI090721, R98008, AA992295, and AI024933.
HMSCT69	8249	855855	1 - 462	15 - 476	Z54334.
HMSCP73	8250	764703	1 - 354	15 - 368	AA213710.
HMSCO63	8251	855863	1 - 431	15 - 445	H80947, H54099, and AA513418.
HMSCD07	8252	954243	1 - 314	15 - 328	AA214194, and AL031709.
HMSBZ67	8253	973737	1 - 473	15 - 487	AC003091.
HMSBZ13	8254	855866	1 - 436	15 - 450	T93073, and AI826311.
HMSBY67	8255	752145	1 - 464	15 - 478	AA258700.
HMSBW54	8256	880721	1 - 571	15 - 585	AA280755.

HMSBU24	8257	678709	1 - 757	15 - 771	T47576, T47577, and AF146689.
HMSBO95	8258	796724	1 - 363	15 - 377	AA010247.
HMSBM92	8259	792970	1 - 127	15 - 141	
HMSBI82	8260	780229	1 - 176	15 - 190	
HMSBI56	8261	733772	1 - 71	15 - 85	AL122007.
HMSBH85	8262	784576	1 - 448	15 - 462	H69907.
HMSBH08	8263	958802	1 - 1311	15 - 1325	AW378532, AW089016, AA595661, AI123488, AL044701, AA493808, AI828721, AA507623, AA935827, R72363, AI355246, AW152439, AA584360, AW057760, AA654705, AA676592, AI453476, AI791659, AI733523, H71678, AI567676, AA493245, AI521525, AA425283, AA135761, AA640305, AA526643, AA829565, AI984168, N32081, AI434686, N29829, AI609984, R22196, AI350189, W04238, AA720582, AI159799, AI345566, AI697235, AW020150, AI860423, AI915081, AI242614, N27362, AA128511, AI434103, AA526542, AI697239, AI610012, AI583532, AA487209, AI697242, AI609974, AA631915, AI342863, AI086603, AA482682, AA577706, N23099, AA635135, N94115, AA640104, AI798493, N32080, AA747757, AA584183, AI280535, AA303002, AA807704, AI537368, AA015948, AI791426, AI732473, AA525112, AI521042, N32094, AA297776, AW272606, AI682899, AI754064, AI679730, AW072963, AA832145, AA054055, AA613761, AA719564, AW380335, AA564591, D34614, AC007546, AP000688, AL008710, AL035413, AL109952, AL049631, AC007388, AC003108, AC000353, AC005305, AC005921, AC002430, AC007565, AC006011, AL049636, AC007384, AC003002, AC005516, Z84474, AL133246, AL031229, AC006121, AC004008, AC003962, Z93024, AC005003, AC005088, AC005619, AF109907, AL022326, AL022237, AL049872, AC007283, AC005839, Z93241, AC002544, AL031666, AC007421, AL031602, Z95116, Z95114, AF141309, AC004663, AC002310, AC005399, U78027, AL022322, AC009247, AL049743, AC007227, AC004662, AP001054, AC007207, AL035422, AF107045, D28126, AL022398, AL035462, AL049869, AL034451, AL031297, AC005593, AC007151, AC002128, AL031681, AC005328, AC004408, AC004150, AC004699, AL031311, Z86090, AF024533, Z84469, AC005231, AC003043, AL022721, AL133163, AL133241, AP000049, AC003667, AL035684, AC000025, AC005015, AC004477, AC004099, AF060568, AC002316, I34294, Z92546, AP000311, AC005049, AC006505, AL121578, AC003112, AC007559, AC005527, AC001234, Z97054, AP000116, AC002549, AC004755, AC005899, AP000555, AC004009, AF196972, AL031782, AC006013, M63796, AC005082, Z93023, AC004887, AC004920, AC005913, Z73359, AL096701, U93305, AP000497, AC004491, AL034379, AF196779, AF207550, AC005255, AC002538, AL049757, AC004448, AC004973, AC007899, AC007536, AP000359, AP000689, AC006111, AP000353, AC006017, Z83844, AC002407, AC002039, AC006449, AC004814, AC005377, AC004079, AL117258, U07561, Z97353, AF184110, AC005971, AC007386, AL109627, AL096767, AC005754, AC005624, AC004893, AC005529, AP000233, AF134726, AC007057, AP000289, AP000147, AC006101, AC006236, AC005369, AP000350, AP000042,

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HMSBH07	8264	954457	1 - 448	15 - 462	AL0225156, Z80896, and U51560.
HMSBF92	8265	582654	1 - 905	15 - 919	Z99774, AC007073, AP001051, AC007016, AP000014, AL009179, AL096772, AC002375, AC005347, AC006060, AC005279, AC008123, AL008710, AP000155, AL109620, AC005736, AC007240, Z82250, AC005905, and AC006167.
HMSBC31	8266	960021	1 - 552	15 - 566	R08621, R09445, T83341, R12764, AI868587, AW168691, R52828, R66453, AI572495, R26443, AI479182, AI745312, AW272841, AI376897, AI559339, AI818827, AI128920, AI818867, AA056017, AW243942, H98699, AI801490, AA599935, AI241017, AW023649, AI879926, AW264809, AI432465, AI022932, AI042229, AW294405, AI638167, AA563714, W46846, AI619816, AI453457, AI215121, AI373123, N63964, AI245268, AA972323, AA709398, AI122927, AI336525, AI273714, AA599488, AI862846, AI128566, AI950246, AW236025, D58140, AI951485, AI742100, AI913610, AI873481, AI479476, H47624, AI365294, AI610258, AI868878, AW192014, AI094370, AW295145, AA778934, AW303589, AI247403, AA947308, T90383, AI457642, R62344, AI346810, AA864840, N46424, AI655638, AW082317, AW305262, AW207683, AW084022, AI274053, AA490456, AI973108, W46841, Z40817, N20960, R91085, AW129403, H58229, N52900, AA034024, AI916541, C21345, AW152560, AA135710, AI913607, AA885112, C16453, R56284, and AI342372.
HMSBA43	8267	715699	1 - 364	15 - 378	II63639, and AA805570.
HMSAV84	8268	781872	1 - 405	15 - 419	H62879.
HMSAV65	8269	747792	1 - 393	15 - 407	AA524821, AA180370, AA083046, AA224525, AA181758, AA837677, AA526787, AA935988, AA493695, F36273, AI872020, AA757797, AA533303, AA580808, AA846953, AI584186, AL042213, AI653375, AI859742, AA477122, AI933534, AA551503, AI583283, AI243584, AA482806, AA632600, AA621596, AA782304, AI732547, AW075511, AW193265, F18619, AW168618, AA584167, C17734, AA992337, AI270117, AW438643, AI345654, AA834792, AA583898, AA847499, AA501821, AI908381, AA581903, AI350211, AI679782, AA483223, AA490183, AA715991, AA581076, AI049634, AA720702, AA935100, D58349, AL022329, AC009516, AC005089, AC006211, AC005412, AP000056, AP000171, AL132712, AL080243, AC005484, AP000330, AP000043, AC008115, AC004686, Z93930, AC005081, AC004491,

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HMSAT76	8270	842065	1 - 623	15 - 637	AA906051, AI911368, AI809060, R37329, and AW292043.
HMSAQ95	8271	796728	1 - 381	15 - 395	AA054495, and AL078593.
HMSAQ58	8272	738495	1 - 346	15 - 360	N36504, and W03426.
HMSAP36	8273	518062	1 - 211	15 - 225	
HMSAO42	8274	714316	1 - 174	15 - 188	AA678143.
HMSAH80	8275	781640	1 - 365	15 - 379	R09134, and AC004897.
HMQDV06	8276	936015	1 - 450	15 - 464	AI492018, AW444713, AI760623, AI347343, and AI917642.
HMQDQ42	8277	457221	1 - 344	15 - 358	T87271, AI356228, and AI683496.
HMQDL40	8278	711421	1 - 242	15 - 256	AI948473, W87704, AI610102, and AI831741.
HMQCZ36	8279	708066	1 - 372	15 - 386	R16464, T80874, and AC006559.

HMQCZ18	8280	574068	1 - 459	15 - 473	R72937, AJ003337, AP001056, and AP001055.
HMQCX42	8281	712966	1 - 431	15 - 445	R97476, T83110, T82131, and AB018341.
HMQCV29	8282	974683	1 - 486	15 - 500	AW089880, R84393, AA976621, W73367, A1478491, AI081094, H43299, AW294792, AA378963, AW292636, AA378964, W69666, H66133, AI671768, AA701250, AA702739, AI985183, AW207720, AW292633, AW271763, AA256004, T47922, W45654, AA455850, AA704633, and AC020663.
HMQCN17	8283	385544	1 - 384	15 - 398	AA190721, AA974701, and AA149317.
HMQCM46	8284	719201	1 - 123	15 - 137	AI219699.
HMQCM41	8285	711586	1 - 135	15 - 149	
HMQCM05	8286	932363	1 - 180	15 - 194	
HMQCI69	8287	754188	1 - 419	15 - 433	N47102, AW135582, AI700192, AI871529, and AW081758.
HMQCH54	8288	728851	1 - 265	15 - 279	AA026069, and AA026070.
HMQCB03	8289	963370	1 - 305	15 - 319	AW072495, AI560951, AI743233, AI583496, AI583807, AI310201, AI380351, AA928555, AI500421, C17500, AI339070, AI884995, AI197975, AI344492, AI884792, AA877126, AA233986, AI245590, AA442443, W57931, AI079317, AA143237, AA721704, AA304268, AI027135, AI252344, AI335498, AI312160, AI334907, AI307561, AI252601, AI345291, AI312354, AI344924, AI312953, AW074978, AI590450, AW075157, AW301942, AI312975, AW301956, AI583821, AI348908, AW302779, AI370101, F26488, AI340917, AI611858, AI318626, AI802845, AI053448, AI376475, AI344868, AI308315, AA570158, AI311886, AW268184, AI541347, AI612046, AI307429, AI250091, AI370083, AI308517, AI308028, AI309430, AI611379, AI307014, AW301798, AI250220, AI417297, AA862400, AA143295, AI749104, AI879450, AI362876, AA933040, AI609988, AI382677, AI541281, AA282746, H46464, AA340388, AA327360, F36474, and AL133448.
HMQB:N40	8290	779856	1 - 459	15 - 473	AA258747, AI347356, AW005871, AA639645, AI391658, AI379681, AI928095, AI819881, AA136079, AA557386, and Z79996.
HMPTA56	8291	921233	1 - 356	15 - 370	AA359995, AA993757, AC006026, and Z61386.
HMPTA28	8292	685099	1 - 290	15 - 304	AC006287.
HMPSC38	8293	709222	1 - 331	15 - 345	R08653.
HMPBB84	8294	781863	1 - 731	15 - 745	AA362237, and AA362238.
HMOAD90	8295	600400	1 - 339	15 - 353	
HMOAD60	8296	855919	1 - 228	15 - 242	
HMMCL96	8297	796276	1 - 468	15 - 482	AW023589, and R00787.
HMMCI01	8298	913715	1 - 329	15 - 343	AA835501.
HMMCH69	8299	754902	1 - 313	15 - 327	T52346.
HMMCH09	8300	625366	1 - 586	15 - 600	W01465, and AA259146.
HMMCD83	8301	875272	1 - 438	15 - 452	AW168912, T57077, T57149, AA570710, W04964, and AI743980.



HMMCD23	8302	675720	1 - 499	15 - 513	R27937, and Z97054.
HMMCA11	8303	966677	1 - 448	15 - 462	AA677566.
HMMCA08	8304	958980	1 - 424	15 - 438	AA610438, AI571512, AW074207, AA652057, AA649642, N23649, AA125788, AA548702, AA733208, AA555260, T40617, AA095511, AW088058, AI554289, AA557879, N23874, AI246340, AI469166, AW069427, N73083, AA317656, AI038990, F03525, AW406447, N26061, AI281903, AA687182, AA576336, AA812139, AI914151, AI801482, AA338522, AA301813, AA181494, H37777, T07324, AA552856, W25284, AA653327, AA594725, AW339568, AI754658, AL119123, AI744827, AA832181, AA074458, AL134703, F34999, N70337, H63991, AA526193, AA629415, AW408063, AA629407, N53152, T06652, AA369477, AA317170, AL138242, AI708005, AA613345, AF087510, AF006501, AL031587, AL031133, AC005694, Y18000, AC005529, AL132712, AF007544, AL121577, U86136, AL109611, AC005375, AC016025, AC016026, AC006080, U55182, AL035685, AC005210, AL031228, AC006057, AC006505, AC002316, AC005994, AL049690, AC007227, AC005324, AC007450, AB016897, AL022238, Z82976, AL080242, AL023575, AL008583, AC004820, AC007226, AC004526, AP000073, AC005569, AC005364, AC004232, AC020663, AC002115, AC004408, U51559, U63313, AP000432, AL121782, Z95126, AL136504, AC006536, AC009498, U41384, AC004944, AL121580, AC005030, AL049839, AC005175, AL050343, AF003530, AP000153, AP000012, AL031577, AC008071, AL049636, AC004492, Z15025, Y14768, AP000505, AL096712, AF129756, AC005940, Z98946, AC005808, U95740, AC005520, AP000350, AC007461, AL049779, AL049776, AC003983, AC003102, AC006323, AC005726, Z68344, AC005785, AF091512, AC003103, AP000692, AL022578, AC002080, AC005695, AC003684, Z99716, AC005500, AC005872, AL096734, AF154840, AL096765, Z84723, Z46773, AC005346, Z68756, AC005262, AL049741, AC004752, U07563, AL022320, AL096776, AC005998, AL022163, AC006486, AC003007, L78833, AC002310, AL109984, AC006543, and AL078474.
HMMBZ18	8305	666192	1 - 746	15 - 760	AA701580, AA701569, AA828646, AA776372, T87907, AA811226, R07726, R93731, AA761770, AL240497, T88001, R06363, R06362, R08543, and AA810943.
HMMBZ05	8306	566870	1 - 654	15 - 668	AA441997, AI885572, AW080811, AW166611, AI754658, AC005803, AC007436, AC007221, AC004905, AC004815, AC005225, AC006512, AC004616, AC004963, AF111169, AC002425, X75335, X54175, AC006948, X54181, AF196779, AC005784, X54178, AC006511, AC006023, AC005237, AC005067, M87919, AF207550, AL035072, AC004417, AC004858, AF109907, AC005988, Z97630, AC003688, AC007360, AC007546, AC005971, AC007899, AC002551, AC005521, AC007237, AC007731, AC007263, AC005500, AJ003147, Z68162, AC006160, AC007786, AC006255, AC002553, AF015148, AC005755, AC005288, AC005284, AL121653, AC006011, AC005531, AC009516, AL132712, AC006480, AL049780, AL034548, AL049709, AL022316, AL136504, AC002558, AL009181, AL049839, AC002544, AC005399, AL134448, AL022302, AF117829, AC004253, AC006501, AC006312, AL133353, AL031311, AL022329, AC005759, AC004643, AC004019, AC003664, Z85986, AC005786, AC006079, AC000052,

					AC004263, AC004033, U52111, AL109627, AC006211, AC004034, AL049759, AL080243, and AC005306.
HMMBX01	8307	916067	1 - 406	15 - 420	AI220476, AI736552, AI935005, AW090719, and AC006504.
HMMBV08	8308	958987	1 - 450	15 - 464	AI939575, and AI362923.
HMMBU13	8309	597147	1 - 444	15 - 458	H65100, AC004686, AF201333, and AF081568.
HMMBT64	8310	746399	1 - 408	15 - 422	T96528, and AA543014.
HMMBT30	8311	841959	1 - 607	15 - 621	AA280370, R58990, H71497, AC005050, and AL031985.
HMMBT03	8312	855930	1 - 631	15 - 645	AI754567, AI583466, AI061313, AL079734, AI436433, AI962030, AI366993, F23264, AW237905, AA904211, AI755214, AI923052, T74524, AI754105, AI754653, AA420546, AA864603, AI254959, AI612142, AI281730, AA515728, AW103406, AI354423, AI306232, AA829036, AA535216, AI583252, AI610941, AW275432, AA469327, AW274191, AA225406, AI926102, AI923451, AI635028, AI801505, AA456924, AI469599, AW243793, AA595661, AA714011, AW151541, AI521525, AI279417, AW271904, AW020088, AI798449, AI251576, AW272294, H07953, AA825827, AW023111, AL041375, AI984168, AA483606, T49633, AI291439, AI290405, AI138182, AI537995, AI536858, AI130709, AI249688, T05118, AA570740, AW069227, AI476049, AA524616, AA683069, AI917132, AI674840, AA651639, AI380617, AA608520, AI491765, AW272640, AI814682, AA284247, AI923458, AW328000, AI590485, AW089016, AA937809, N77915, AI753113, H05940, AC005006, Z98036, AC005004, AC004757, AF196779, AC004386, Y14768, U85195, AC005962, AE000658, AC007298, AP000505, AF165926, AL021154, AC006333, AC006026, AC004466, AP000114, AP000046, AC006312, AL049843, AC007371, AC004106, Z85986, AL023553, AC004991, AC005261, AC002425, AL031659, AC006942, AC002301, AC002418, Z95331, AC003669, AC004922, AL031680, AC009247, AC005821, AC002316, AL109839, AL035407, AL034548, AL049839, AC005736, AC005039, AL031737, AC005899, AL035587, U96629, AF130343, AC007707, AL034343, AC005378, AC004148, AC000003, AC007731, AC005632, AC005500, AC005280, AC007227, Z84487, AC005274, AL049643, AC000353, AL031283, AP000694, AC007993, AL050318, AC005837, Z98751, AF152363, AC004216, Z98256, AC007686, AL022098, AF031078, AC005220, AL024498, AF030876, AL023879, AL121655, AC004972, AL031848, AC005332, AC002300, AC004000, AL049872, AC007546, AC004033, AP000510, AL049780, Z93017, AC004821, AC004988, AC004458, AC005544, AC006552, AC009516, AC005952, AC004819, AL079340, AL109758, AC003080, AC005598, AC000118, AL117329, AL049856, AC006211, AL022315, AF134726, AC002369, AC005041, AC002426, AL050307, AL078581, AL133163, AC006057, AL121603, AC004796, AC005887, AC007052, AL049712, AL049636, AF053356, AC006354, AC004408, AC004181, AL050348, AC005158, AB023048, AL022724, AC004686, AP000697, AC005095, AC004999, Z93016, AC005670, AJ011930, AC008072, AL009172, AL022238, AL035659, AL121652, AL080317, AC005535, AC003982, AL117258, AC008115, AL024508, AP000302, AC005844, AF001549, AC005484, AC006017, AC004491,

					AL121840, U80017, AC005971, AC005089, Z84469, AC007617, AC005529, AC006362, AL021807, AL079295, AC005823, AC003041, AC005520, AC005479, AC005399, AF067844, AC005225, AC007308, AC007388, AC004914, AC003663, AL049823, AC004605, AP000210, AP000132, AC000025, AC005562, AC007690, AL035405, AC006101, AF031076, Z98044, AC002553, AC002351, AC004533, AC003109, AC003029, AC002326, AL031280, AL022401, AL021453, AC006530, AC005702, AB003151, AC004020, Z99127, AP000248, AC005011, AL009031, AL021579, AL049569, AL122020, AC003962, Z93930, AL050312, AF196969, AC006084, AP000555, AC005082, AC005057, AP000152, AL049690, AC006581, AL033504, AL133448, AC012384, AL033397, AC004996, Z97630, AC002432, AC006511, AC005874, AF134471, AC003037, AF095901, AL117337, AC002352, AL031594, AC004928, AC004531, AF030453, AB020868, AC007774, AL008710, AC006062, AP000240, AP000042, AL121838, AC004526, AC005527, AL122126, AL136295, AF017104, AC002312, and AC002404.
HMMBQ08	8313	958988	1 - 343	15 - 357	N24829.
HMMBO49	8314	722753	1 - 439	15 - 453	R56828.
HMMBO28	8315	686318	1 - 344	15 - 358	AL242854, and T99820.
HMMBN76	8316	769890	1 - 482	15 - 496	W88435, R98924, and T80763.
HMMBN71	8317	973436	1 - 458	15 - 472	Z99396, AL119484, AW392670, AL119439, AW372827, AL119391, AL134530, AL134519, AL119319, AW384394, AL119522, U46347, AL036418, AL038837, AW363220, AL119497, AL119457, U46350, AL119324, AL037051, AL036725, AA631969, AL119363, AL119443, AL119483, U46351, AL119355, U46349, U46341, AL119341, AL119335, AL119396, AL038509, AL036858, AL119444, AL119418, AL039074, AL119496, AL036924, AL037205, AL134528, AL043003, AL042614, AL119401, U46346, AL042544, AL134525, AL037639, AL134524, AL039564, AL039085, AL037094, AL039156, AL134518, AL037082, AL042984, AL042965, AL042975, AL039108, AL039109, AL037526, AL039128, AL119399, AL036196, U46345, AL142137, AL134538, AL043019, AL042542, AL142132, AL042551, AL036767, AL037085, AL038447, AL043029, AL036190, AL042450, AL037077, AL036268, AL038520, AL038851, AL036238, AL037615, AL119464, AL036774, AL037178, AL036998, AL036733, AL036719, AL037027, AL036765, AL036679, AL036191, AL036158, AR066494, AR060234, A81671, AR023813, AR064707, AR069079, AB026436, AR043113, and AR054110.
HMMBN54	8318	729352	1 - 384	15 - 398	II73690, and AF152365.
HMMBM8	8319	781010	1 - 228	15 - 242	T95450, W03267, and AC004112.
HMMBL55	8320	731523	1 - 438	15 - 452	R36479, and AL091460.
HMMBH64	8321	746402	1 - 337	15 - 351	T78390, and AL031714.
HMMBF86	8322	812597	1 - 156	15 - 170	H56329, AA852740, AA331858, AA314410, AA375100, AA356819, AA331462, AA295347, AA232345, AA242864, AA081834, AL037869, AL037847, U91327, and AF026166.
HMMBF72	8323	761389	1 - 304	15 - 318	T91720, and AC007016.

HMMBF41	8324	711731	1 - 492	15 - 506	T40112.
HMMAV44	8325	716396	1 - 628	15 - 642	T86763, T86671, F05024, AL109758, AC005089, AC004770, AF053356, AP000555, AC002400, AL032821, AC002300, AC003010, AC004938, AC002302, U89335, AP000512, AC005067, AC005412, AC008038, AF001550, AC006480, and AC005529.
HMMAT23	8326	973437	1 - 572	15 - 586	AL035447.
HMMAT08	8327	959005	1 - 519	15 - 533	T64273.
HMMAS73	8328	764280	1 - 583	15 - 597	N47781, AI732466, AA133879, AI820506, T70099, AI821351, T70032, N56894, and AC006599.
HMMAR20	8329	669523	1 - 648	15 - 662	AA968696, AI017739, T71248, R85439, AI343336, AI168580, and AI699440.
HMMAQ70	8330	757070	1 - 428	15 - 442	W04436.
HMMAO06	8331	935087	1 - 643	15 - 657	AI241754.
HMMAL71	8332	760206	1 - 412	15 - 426	AA449997, AL079734, AA502207, AI733856, AI683552, AL041375, AA297666, AI859438, AI279417, AA714110, AI732483, AW237905, AI366993, AA715814, AI049630, AI281561, AI053696, AI491765, W23546, AA410788, AA508809, AL047349, AI783911, AI284045, AI908093, T74524, AA704393, AI912401, AL046519, AI821881, AI753113, AI821918, AI281818, AW080215, AA669238, AI114733, AI133552, AI251576, AW243793, AA558366, AW340905, AI962030, AI054244, AI440117, AI135377, AA609834, AA584241, AW193493, AA483606, AA515138, AI620585, AW419389, AI753672, AA904275, N23913, AI936229, AA507343, AA720732, AA315361, AI620992, AA570740, AI119909, AI270177, AA535216, AI753365, AI612142, AW167154, AW407632, AI961983, AI417469, AA632765, AA503018, AA665021, AI053784, AI066646, AA128511, AA925562, AI583466, AI267269, AW089625, AI597832, AI801563, AA513551, AI380617, AA568204, AI133013, H07953, AA904211, AI244985, AI284092, AI814682, AA557982, AW270619, AA084766, T05118, AI537995, AI130709, AI267356, AI267450, AA225392, AI306232, AA644090, AA610381, AW192373, AI267884, AI865213, AA533408, AW089016, AA730305, AC006312, AF030453, AC005088, AL049569, U80017, AC004851, AC005740, AC005899, AC006211, AC005081, AC005015, AC005225, AF196972, Z83844, AC009247, AF196779, AC005874, AF134471, AL096701, AC020663, AC004883, AC006511, Z83846, AC002425, AC005231, AP000558, U89336, AP000694, AC006017, AC005914, AL049795, AC005529, AC005086, AL121653, AL022163, AC005082, AC007226, AC006538, AF001552, U95740, AI035086, AL031846, AC005722, AC005527, AC004099, AC004491, AL049653, AL023883, AC005565, AL050318, AC004811, AF053356, AF001549, Z93023, AL096791, AP000692, U47924, AC006115, AC002483, AL022238, AC006121, AC007308, AC002126, AC006285, AC004876, AC005200, AC005519, AC005702, AC000094, AC006449, AP000557, AF064861, AC007421, AC007057, AC003026, AL020997, U96629, AL031281, AC004858, AC002565, AP000044, AC006006, AL080243, AC002477, AC005089, AC004796, AL049538, AC005358, Z84572, AL009183, AL049830, AL031005, AC005072, AC003982, AF130343, AP000212, AP000134, AP000967, AC004263, AC008115, AC003663, AL034420, AC005730, AL034379, AC006544, AC007384, AL132712,

					AC005921, AC006111, AC002997, AC004125, U85195, AC006064, AC002558, AC005031, AC004996, Z82244, AC002310, AL022316, AC002492, AC005005, AC005215, Z99127, AL109627, AC004534, AF037338, AC008044, AC005829, AL080242, AE000658, AC007688, AL049631, AC004019, AL022313, AC007536, AC005971, AC005821, Z97054, AC006543, AL031594, AF109907, AC007563, AP000402, AC006530, AL031662, AD000092, AC004526, U91323, AC006241, AL121652, AC003957, AC004686, AL024508, AC007686, AC002044, AC004874, AC002350, AC007055, AC005261, AC004983, AL121658, AL021393, AL031681, AL078463, AB000882, AL050341, AC005156, AC006430, AL030996, AC009516, Z95115, AL133163, I34294, AC002326, AC004881, AL033397, AC007687, AC006057, AL049636, AL024498, AC007731, AC004895, AF187320, Z97630, AL031311, AC005071, AC004757, AL132777, AB023048, AL024507, AP000223, AC004648, AC005531, Z98950, AC007225, AC006388, AC006023, M30688, D14872, AC004966, AC005920, AC003101, AC004990, AC007151, AC006509, AC005902, AL035423, AC002470, AC007193, AC005602, AC002426, AC007845, AC005331, AF134726, AC007899, AL133448, AL117352, AC007546, AC005578, AC004216, AC007707, AC002416, AC002996, AC002430, AL049776, AC005057, AJ246003, AL031848, AC005695, AC008116, AL020993, AL133396, AF207550, AC004941, AC005808, AC005666, AC005632, Z85986, AC004887, AC004890, AC004622, AC004921, AL035455, AC002316, AC003029, AP000504, AL023553, AC004638, and AC007298.
HMMAL69	8333	754908	1 - 395	15 - 409	W87482, and T40816.
HMMAL59	8334	738982	1 - 414	15 - 428	AI866921, AI866920, AA135159, R06121, AW004825, AI683019, AL031120, and AC004854.
HMMAL54	8335	729351	1 - 422	15 - 436	AI245693, AW303822, T08386, AC005763, AC005696, AL031311, AC004804, Z99716, AJ246003, D87675, AL121658, AC003101, AC004150, AL031280, AL035079, AC007262, U85195, L44140, AE000658, AC005412, AL022316, AC004890, AF165926, AC005520, AL121652, AC002314, AC002041, AD000092, AL049766, AC005736, AC005180, AL035422, AC004854, AC005049, AL109628, AL035405, AC004491, D88268, AL049764, AC005562, AC005932, AF045555, AP000104, AP000115, AC004972, AC007160, AC005081, AC018633, AB026898, AL049829, and AL096712.
HMMAL44	8336	716407	1 - 411	15 - 425	W86636, AI692200, and AI800445.
HMMAL42	8337	713542	1 - 411	15 - 425	AL133246.
HMMAL35	8338	707278	1 - 291	15 - 305	AA492230, AI890283, AA506952, AI684335, AI983447, U73642, AC005484, AL031848, AC005231, Z84466, AC009247, AC002558, AF205588, AC006241, AC006064, AC005200, AC005544, AC004686, AC006511, AC004491, AL034370, AL133396, AC004805, AL049776, AC005529, and AC007382.
HMMAL30	8339	693545	1 - 137	15 - 151	
HMMAL18	8340	665512	1 - 386	15 - 400	
HMMAL16	8341	661699	1 - 399	15 - 413	AA782338, AP001052, AC006012, AC005736, AL022331, AC005632, AP000558, AC009516, AL136504, AC007688, AC007938, AL008718, AC007731, AC005500, AP000553, Z85996, and

HMMAK83	8342	781016	1 - 697	15 - 711	AC005255.
HMMAH61	8343	741662	1 - 437	15 - 451	AA007282, AI698091, AA007283, H78432, R91689, R97591, AI311305, R91688, and AI302599.
HMMAF92	8344	973971	1 - 618	15 - 632	H40407, AW391548, and AI356524.
					Z99396, AW392670, AW372827, AW384394, AL119355, AW363220, AL119319, AL119497, AL119443, AL119335, AL119363, U46341, AL119483, AL119457, AL119324, AL119496, AL119484, AL119391, AL119396, AL119341, AL042614, AL119522, U46349, AL042970, AL037526, AL042433, AL134518, AL042965, U46351, U46346, AI142137, U46350, AL134920, U46347, AL119444, AL119418, AL119320, AL042995, U46345, AL119439, AL037205, AL042850, AL038520, AL134532, AL119488, AL036268, AL119304, AL036679, AR060234, AR066494, A81671, AB026436, and AR054110.
HMMAF34	8345	842015	1 - 466	15 - 480	AA513125, AI926296, AI949430, AW085621, AW168103, AI583532, AI474110, AA826599, AI473995, AI073373, AA056206, AW166944, AW173443, AL037632, AA297776, N70293, AC002096, AC006080, AC005726, D84401, Z82215, AL031228, AL022067, AL034548, X87344, AC003665, AL020989, AL022097, AC005004, AL033524, AC004408, AL034554, Z95152, AC005089, Z99716, AC006597, AL132708, AL049553, AL109748, AC005858, AC007056, AC005539, AC002430, AC007384, AL022165, AC007182, AP000502, AC005859, AP000065, AL008732, AD000092, AC009464, AL031584, AC005669, AC005409, AF196779, AL139054, AF053356, AL096791, AL049869, AL109801, AL031905, Z86090, Z93020, AC003663, AC004890, AC007308, AC002470, AL031289, L78810, AC005747, AB023048, AP000511, AC005820, AL035703, AB022785, U89336, AL031005, Z84466, AC004876, AL022316, AP000555, AB014079, AC006139, AP000514, AC005088, AC002094, Z99289, AC005988, AC006117, AJ003147, AC002550, AL031284, AL034562, AC003086, and AL122020.
HMMAE45	8346	720838	1 - 791	15 - 805	T91212, T79614, AA553354, AI144465, H75716, H75645, and AF085988.
HMMAE16	8347	856007	1 - 390	15 - 404	AI915564, AI538833, AW449097, R33336, and R21762.
HMMAB96	8348	826488	1 - 772	15 - 786	AL119483, AL037777, AI267356, AA298789, AI133083, AI270177, AW069227, AA381754, AI754567, AI755214, AI362442, AI249688, AI754105, AI634187, AW265155, AI249519, AI085242, AA302971, AI754687, N63149, AA584438, AI457313, AC005519, AL078584, AC005412, AC005919, AC004921, AC003012, AC000025, AC002288, AC004492, AC006017, AC005529, AC002316, AC004922, AC007114, AC002303, AC005183, AC005694, AC004228, AL034379, AL022330, AL035415, AC003049, AC007227, AC006449, AC004799, AL049776, Z83844, Y18000, AP000212, AP000134, AP000030, AL117338, AC005527, AC005243, AC005015, AC004032, AL035443, AL021368, AC005220, AC007687, AC004983, AL049829, AC007298, AF001552, AC007225, AL022334, AF196779, AC006312, AC008149, Z94056, AC002287, M89651, AC004638, AL035422, AC005730, AC007688, AC004837, AC005874, AF134471, AC005081, AC006064, AL035410, Z98200, AL135783, Z99570, Z85987, AC004770, AC002352, AC002470, AC002302, AL034548, AC004796, AC005722, U91323, U78027, AC005899, AL008635, AC005553, AC004106, AL079342, AC004825, AC007537, AC002457,

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HMCIW93	8349	897377	1 - 293	15 - 307	AW238972, AW406916, AA075901, AA044211, H25630, H43485, AA287470, AA296869, AA296696, AA298795, R55519, H80718, H73675, AA034079, AA296826, AA187096, AA218811, AA297863, AA296837, R95168, N86960, R39644, T10507, AA485829, AI342703, C00212, W95348, AA806231, AF161462, and AC002390.
HMCIZ77	8350	771795	1 - 345	15 - 359	R07250.
HMCHS34	8351	703691	1 - 483	15 - 497	T86231, T83384, and T86130.
HMCHK58	8352	752431	1 - 574	15 - 588	AA160383, AI818161, AI962470, AI655470, AI201401, AI962522, AI809442, AA757199, AA954406, AI557476, W46315, AI263049, AI557453, AA332432, AI867723, AA383667, AI205764, AA370001, AA157926, AA884706, and T78360.
HMCIX46	8353	886903	1 - 415	15 - 429	
HMCIGV66	8354	787512	1 - 203	15 - 217	AI159933, AI971968, AA906691, AI183889, W79831, N92399, AA557293, AI350318, AI017848, AA127092, AI189367, AI924445, AA911261, N70568, AI273685, AI291841, AI912574, R49953, AA937786, AA988459, AA40424, AI081962, W19157, AI129889, AA935718, AI066610, and AF111170.
HMCIGF39	8355	856222	1 - 484	15 - 498	W27128, and H14722.
HMCIFR57	8356	734404	1 - 405	15 - 419	AI304652, AI347073, AI343275, AI261508, F26025, AA936207, N66083, AA769680, AI867524, AI262402, T99852, and AA854036.
HMCIFM86	8357	846578	1 - 498	15 - 512	N58309, AI741756, AA719678, Z39349, H77634, AA868804, AW183178, AI033998, AA910754, AA837855, AI310989, AI753587, AA907745, AA424559, AI015988, AI290795, AA992451, AI025107, AA806009, AA007654, AI033216, AI399750, T06491, AA917469, AA134955, AA702309, AA934480, AA873079, AI097519, W90376, AI818372, R05851, AA285180, AW118589, D56552, AI474543, R98024, T03445, AA886062, AA533260, M78918, AI468146, AA309446, AA424656, AA492384, AF132945, and AF112204.
HMCIFM04	8358	927002	1 - 529	15 - 543	AA569402, AW070532, N38778, AW190781, AW340905, AA535216, AW023111, AA773463, AW237905, AA714110, AA828637, AA524616, AI674840, AI7555202, AI066646, AW272294,

AA225406, AA456924, AI061313, AA632765, AW277174, AI635028, R92658, AI755214, AI754567, AA832175, AI732151, AW270768, AA704393, AA904211, AA572813, AA644090, AI291037, AI469140, AI754105, AW270619, AA630854, T50676, AA534064, AA720774, AI046519, AA715814, AW103406, AA410788, AW328331, AI004591, AA228824, AA523203, AA523204, AL079734, AI491765, AI251576, AI884383, AI053696, AA483606, AA579152, AI609972, AI923451, AI306232, AA527602, F35374, AA720732, AW151935, AI733856, AA570740, AA126475, AA613624, AI370475, AA297666, AW274078, AA653139, AW238253, AA558404, AW081485, AA548610, AI355246, AW130427, AI583466, AA829065, AW075132, H71678, AI955029, AI114733, AI590458, AW243793, H05066, AI345695, AW301771, AI133552, AW274191, AA557982, AA581525, AI801649, AI301373, AA536040, AI446452, AW167330, AI923458, AI627917, AI750865, T74524, AA700943, AA568204, AI570943, AA504818, AI249688, AI249365, Z97053, AF045555, AC005844, AC005081, U91326, AC007182, AC002544, AL031662, AC003098, AF196971, AC004895, AC006077, AC005839, AC004242, AL132641, AF196779, AC005412, AL022323, AC007637, AC003101, AC006285, AL021878, AC005274, Z98742, AC005971, L44140, AC003029, AC007999, AF134726, U95742, AP000354, AL109628, AL049776, AL117694, AL035249, AL009181, AP000557, AC005189, AC005531, AL022322, AC005089, AL008726, AC004797, AB023049, AC004883, AC005690, AL133448, AL031321, AC004760, Z83844, AL035086, AC004647, AF130343, Z84487, U91323, AC004448, AL078638, AC006241, AL050321, AF207550, Z84488, AL008719, AF051976, AC009247, AC007435, AC007216, Z83847, AC005736, AC005280, AC004973, AL022165, AC006023, U95090, AC005486, AL121652, AC004922, Z95331, AC004531, AL024498, AL096791, AL031846, AL031280, AC003684, AL031431, AC004517, AB020865, AL035443, AP000556, AC002996, L77570, AL109798, AC004864, AC002558, AL031710, AC005512, AC007226, AC002310, AC004750, AC003108, AC006111, AC004821, AL035659, AF217403, AC005914, AC006011, AC005324, AL031587, AC002425, AC005086, AL034429, AC007055, AC005740, Z95114, AL049712, AC005944, AL034417, AC000353, AC009516, AL121653, AC004814, AC007450, AL139054, AL035420, AF001552, AL031681, AF038458, AC012384, AC002470, AL031311, AC007225, AL033397, AL078639, AF111168, AC002352, AP000501, AC004033, Z99127, AL050307, AL031295, AL049694, AC006071, AL137191, AL031432, AC002126, AC005829, AC003663, AL022315, AC005993, AC003010, AC004134, AL031597, Z97054, AL096702, Z95400, Z98752, AP000117, AC005697, AC002395, AC004552, Z95152, AC005500, AC004491, AP000030, AL034420, AL034423, Z98743, AL021453, AC005520, AP000211, AP000133, AC005088, AC000003, AC004966, AC005015, Z82182, AC007536, AJ003147, AL096712, AC004820, AC004762, AC002430, AC016025, AC004148, Z82976, Z99128, AC004241, AF067844, AC006160, Z86090, AC006130, AC006275, AF024533, AC006040, AC004099, AL035685, AC004953, Z93241, AC005519, AC004408, AP000251, AC002070, AL035422, AC002476, AL121655, D87675, AC007686, AC007384, AC006960, AL021546,				
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HMCDN93	8359	791555	1 - 340	15 - 354	AL031053, AC005229, AL031729, AC005209, AC004955, AC005509, AC004253, Z82173, U96629, AC005234, AL033376, AC005527, AC002302, AC004813, AB000877, AC002369, AC004049, Z98051, AL031668, AC007358, AC004224, AC007279, AL030996, AC003043, AC003002, AC005409, Z68321, AC004067, AL135960, AJ131016, AC007676, AC003070, AC003104, AC005666, AF064864, AC007436, AC005245, AP001053, AL031293, and AC005363.
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HMCDC70	8360	757192	1 - 360	15 - 374	AI334327, AI312094, AI337819, AA506997, AA576525, H71553, and AA729906.
HMCAR04	8361	925591	1 - 551	15 - 565	AL048459, and T98081.
HMALZ77	8362	856266	1 - 330	15 - 344	AA111882, and T73731.
HMAIK06	8363	933960	1 - 395	15 - 409	W21990.
HMAJZ39	8364	751523	1 - 532	15 - 546	AA182941, and Z43441.
HMAJL09	8365	950168	1 - 633	15 - 647	AR007575, I18860, I18861, I55990, and I55991.
HMAIU90	8366	886821	1 - 531	15 - 545	AI393335, AI683302, AB008185, and AB008184.
HMAIQ20	8367	669436	1 - 446	15 - 460	H87256, H87307, AI640360, AI263034, and AI360741.
HMAIH15	8368	956705	1 - 527	15 - 541	AA585439, AI526194, Z28355, AI541508, AI541514, AI546855, AI525306, AI541523, AA585101, AI557807, AI525556, AI546999, C16300, AI541509, AI525316, AI546945, AI546899, Z30131, AI535639, AA585453, AI541510, AI541534, AI556967, AI540967, AI546828, AI557799, AI557796, AI541374, AI541365, AA585434, T11028, AI547039, AI546875, R28735, AA585476, R29445, AI526140, AI525431, AA585356, D61254, AI541535, AL040149, C15189, AI541307, AL041140, AL040464, AL040155, AL041346, AL041096, AL047012, AL041358, AI557787, AL041277, AL041163, AL041098, AL040621, AL043538, AL041324, AL04162, AL041086, AL043496, AL041296, AL041233, AL045725, AL040193, AI541017, AI557731, AL041197, AI526180, AL043612, T23985, AL040463, AL047219, AL041227, AL039915, AL047170, AL080031, AL040119, AL040553, AL040529, AL041292, AL041051, AL040322, AL041131, AL046330, AL045990, AL041133, AL040253, AL041238, AL041142, AL040625, R29177, AL040510, AL043467, AA585440, AL04186, AL047057, T23957, AL044037, AL040091, AL040128, AL040168, AL040255, AL040285, AL040342, AL046442, AL040332, AL040617, AL045684, AL040576, AL040745, AL038761, AL040370, AL043677, AL049018, AL040839, AL041752, AL047036, AL041159, AL043775, AL044165, AL043492, AL041602, AL043444, AL045920, AL047183, AL038838, AL045817, AL044074, AL041635, AL040458, AL044199, AL044187, AL040090, AL040263, AL040294, AL040075, AL040329, AL040082, AL044272, AL041186, AL040148, AL041730, AL041523, AL043627, AL041374, AL040052, AL045671, AL043845, AL041246, AL039338, AI525321, AL044064, AL038983, AL039316, AL043923, AL043814, AL043848, AL041459, AL043570, AL039744, AL041577, AL044258, AL046850, AL038532, AL040768, AL037727, AI541013, AL046994, AL040414, AL040571, AL040472,

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HMAIA55	8369	899404	1 - 1005	15 - 1019	AI380016, AA917719, AI990640, AA380953, and AI002739.
HMAHP37	8370	566344	1 - 428	15 - 442	U79131, and U79132.
HMAGT95	8371	795686	1 - 344	15 - 358	H19699, and Z57976.
HMAGS90	8372	788683	1 - 346	15 - 360	AA232761, and AA232130.
HMAGI39	8373	910152	1 - 367	15 - 381	AW445199, AI291885, AI291659, AI681688, AI796788, AI863432, AI371323, and AI586930.
HMAFF71	8374	760304	1 - 538	15 - 552	AA133358, AI025161, AW340752, W05217, AW402176, AA036844, AW444614, AI733576, and AI137679.
HMAFC96	8375	796348	1 - 436	15 - 450	H73609, AC002536, and AF125569.

HMAEK93	8376	791549	1 - 750	15 - 764	AA861218, AA150260, and AA150251.
HMADF74	8377	944465	1 - 1131	15 - 1145	AA311043, H111578, R59755, AA927842, AA199784, AI000363, AI126309, R13187, AI693684, and AL096806.
HMACZ84	8378	975349	1 - 340	15 - 354	
HMACV54	8379	922354	1 - 409	15 - 423	AI000925, AI261943, AA614341, AA532388, AI000930, AI742836, AW376738, AW136154, AW376570, and E08096.
HMABT55	8380	753560	1 - 444	15 - 458	N50809, AA931135, AA972697, AA401345, AI024270, AA873221, AW082806, AW025001, AI752742, AI138745, AI277497, AW452978, AI554935, H50235, AI911227, AI700463, AW303800, AI275531, AI241950, AI760168, AI095901, AA618048, AI936652, R09749, AA936697, AI199598, AI206725, AI830389, AA084391, AA987748, H64022, H06700, AI926722, AA988399, AA838228, AI357218, AI362511, AI362439, AA937768, AI879499, AI693589, AI366339, AI363966, AW363996, T91307, AW149618, AA025560, H15722, AA991841, AA970173, Z40694, AA663409, H20195, AW083589, AI963935, AA843550, H64785, AI243967, AA725384, AW449564, AW450568, AW339993, W96140, W92486, H41770, and AA018786.
HMABD66	8381	388074	1 - 370	15 - 384	
HLYHN64	8382	970747	1 - 577	15 - 591	N53558, AI078352, H49897, W00521, N30989, N57223, AA314759, AA431398, AA972343, AA593987, AA418304, AA101913, W90550, H67020, AW450639, N36463, AA120767, AI494530, H53270, H54554, H54238, AA011423, H66916, AA385267, AI784295, W07652, H84477, AI188087, AI379720, AA430152, and AC005859.
HLYHN40	8383	710825	1 - 468	15 - 482	H82097, H10880, and H96186.
HLYHL55	8384	731447	1 - 447	15 - 461	R32479.
HLYHK64	8385	746310	1 - 456	15 - 470	H53572, AA745885, H28445, AI494060, AI676167, AA889745, AI866665, AI245303, AA703022, AI016995, AW264349, AI254741, AI287476, AW160916, AA580663, AI345688, AA742390, AA641818, AL138406, AI590043, AI309380, AI567846, AI537244, AW075382, AI538885, AW151136, AI432644, AI500061, AW079432, AW022808, AI859991, AI953765, AL037454, AI623941, AW022636, AI287233, AI702527, AA766077, AW161579, AI540674, H89138, AI587121, AW304497, AW268759, N29277, AI673278, AI918449, AL118781, AI473451, AA811142, AI538764, AI868204, AI866461, N63128, AW161156, AL037602, AI446373, AI969655, AW020095, AI499890, AW021717, AI890907, AI345745, AA676361, AI929108, AW020419, AL039086, AL047344, AI581033, AI961278, AI537274, AI432570, AI686576, AW020693, AI340603, AL037582, AI537677, AI621341, AI524654, AI8666465, AI698391, AW162194, AI284517, AI560545, AI923989, AI241901, AI783530, AW020397, AW190297, AL135024, F26535, AI371251, AW163834, AW021373, AI289791, AI888621, AI473536, AI589428, AI696603, AL046466, F27438, AI281757, AI270295, AI471282, AI636619, AI933992, AW082532, AW274343, AW051088, AI472484, AI633125, AI829990, AI538564, AI553645, AL036631, AI915291, AW152182, AW274318, AI582932, AI872423, AI540606, AI434731, AI524179, AI521560, AI889189, N52016, AI539800, AW195253, AI309306, AW104141,

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HLYHK61	8386	932994	1 - 1027	15 - 1041	AI628843, AW167099, AI093592, AI926603, AA470016, AI986035, AI313500, AA617710, AI027777, AA865403, AA514353, AA782005, W69345, W69267, AA860421, W01351, H30472, AA423925, AW131013, AI299627, AA423887, AA034305, AA781518, AI160307, AI446603, AA922534, AA533814, W16698, AW169172, AA654163, AA412735, N69522, AI440188, AI610236, AI752781, R26875, AI306695, AA412294, AW409605, N79834, AA459402, AI049694, AW068125, AA534481, AA745698, AI347601, N54138, AA626929, R72510, AI865836, AW044069, R94735, AA024807, R72511, AA932913, AA430220, AI383150, AI539588, W67475, AL104134, N58666, AI223230, AW088334, AI186385, AI902383, H72504, AA295920, W38450, R70436, AA545735, AA491113, AL044135, R11021, AA834248, W67476, N58200, H72902, AA459627, R53036, R69450, AW368627, AI902360, H24955, AA431234, AI205760, AA552310, AA861991, R27103, C17844, F04994, H77299, D29280, AI436086, H25748, R53035, AA411966, AI648587, AA432254, AI002434, AI016462, R94818, AA865593, AI051263, AI926118, AA643144, R24912, R37917, AA443912, H24995, R72497, R72498, R11020, and X52574.
HLYHK34	8387	703776	1 - 505	15 - 519	R67395, AA865763, AW238410, AI269636, AI636456, AL110306, AL119049, AI929108, AI475371, AL041772, AI567351, AI537273, AI492540, AL045500, AL119791, AL079963, AI497733, AI433157, AL036901, AI537677, AI868831, AI285735, AI343059, AI349933, AA225339, AI696626, AL036802, AI431909, AI433976, AA738104, AI340582, AI340603, AI800138, AI280607, AW238730, AW088899, AW151136, AL121328, AL119863, AW071417, AL121365, AI064830, AL044207, AI909642, AW020095, AI919107, AW162071, AI500077, AI288285, AL040241, AL036396, AW074993, AI888953, AI815855, AI349645, AI344817, AW301344, AW268253, AI699865, AI312152, AI366992, AI312428, AI336575, AI349937, AI499652, AW087445, AW089572, AI802542, AA640779, AW103371, AI349256, AI269862, AI815232, AI697324, AI280732, AI888944, AI174394, AI580190, AI951076, AW302965, AI524671, AL121270, AW167222, AI364788, AL036187, AI680162, AI251830, AI869377, AI538716, AW078680, AI349772, AA613907, AI249877, AW129106, AI446373, AL041573, AW117882, AW020164, AL038605, AI340519, AL120853, AL048656, AI440426, AA427700, AL040169, AI610557, AL036361, AL047042, AW163823, AI521012, AI567360, AW071349, AI921248, AI627748, AI348897, AI619502, AI682743, AI687728, AW150578, AL119748, AW026882, AL135661, AI620284, AI345608, AW406745, N80094, AL036736, AI702073, AL135065, AI612913, AW168485, AI818683, AI499393, AI680457, AI783504, AW268251, AI500523, AI539771, AI560012, AI250663, AI343112, AI680498, AI922901, AI349598,

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HL YHJ37	8388	708625	1 - 466	15 - 480	H11582, and AC002433.
HL YHJ02	8389	919201	1 - 522	15 - 536	AA92212, and A1799979.
HL YHI05	8390	953925	1 - 476	15 - 490	AA830774.
HL YHF62	8391	743058	1 - 357	15 - 371	T47077.
HL YHE85	8392	784140	1 - 500	15 - 514	AA210805.
HL YHA48	8393	721372	1 - 489	15 - 503	AA251190, AA805977, AA765489, AA810907, AL118823, AA081462, H18914, AL135357, AA493136, R17793, AL118862, AA654661, A1524360, A1745151, A1755214, AA845209, A1284092, AA984114, A1754567, AA845659, N71685, AA002063, A1754105, AA584125, N57739, AA748833, AW179306, AA643801, AA548356, AL138182, AA282820, AA126450, AA664320, A1683446, A1270096, AW179305, AL049834, AL031733, AC009399, AC005829, U91323, AL034418, AL049765, AC002544, AC004031, Z83822, AL135744, AP000251, AL023803, AC008085, U95742, AC007065, AP000031, AL049610, AC007938, AC006442, AC000004, AP000134, AP000212, AP000030, AC007216, AC009044, AC006241, AL049829, AC005874, AF134471, AL049712, AC006509, AC005823, AL031587, Z85986, AC005488, Z86090, AC005233, AC005736, AC004837, AC007240, AF064861, AL132777, AL117338, AP000213, AC005755, AL078638, AP000135, AC007011, AC006111, Z83840, AC005037, AC004098, Z98036, AC007731, AC005005, AC007686, AL022165, AP000688, AL023799, AP000356, AC008101, AL031584, AC005484, AC003664, AC003982, U52112, AL035681, AC006441, AC007386, AL031053, AC002375, AP000692, AC005324, Z98304, AL022316, AC005899, AB003151, AC006958, AC005412, AC003098, AC007014, AC005225, AF107045, AC003029, AC005740, AL022574, AL121652, AC004821, AC005911, U95743, AF196779, AL031427, AC004905, AC006064, AC007707, AC003688, AC006511, AC007566, AC008079, AC006146, AC005180, AC002119, AC005102, AC004615, AC005523, AP000493, AL031311, AC004032, AL035071, AC004859, Z94721, AC004966, AL049576, AC005914, AC006317, Z98946, AL121658, AC004526, AC009247, AP000557, AC007934, AC005399, AC004895, AF111168, AL122020, AC007314, AL031431, AC005018, AC005091, AC005971, AC002565, AC005924, AC006581, AP000556, AF024533, AC004605, AL021918, AL035587, AL034417, AC005215, AC004134, AC006084, AC008009, AL021154, AC002477, AC008372, AC004257, AP000513, AC006515, AF001549, AC005545, Z82172, AL022323, Z75888, AC006167, AC005520, AC004167, AC007262, Z93017, Z81364, AC004491, AC004150, AC006079, AL096791, AL110502, AF051976, AL022163, AL049646, AL031230, AL109842, AL022476, AC006538, AC009516, AL078477, AL035089, AL096712, AC007666, AC004813, AC005996,

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HL YHA04	8394	614848	1 - 369	15 - 383		H60556, and T71255.
HL YGZ71	8395	760115	1 - 1102	15 - 1116		AA043495, AI951943, AW193804, AI694511, AI128000, AA412019, AI004612, AI652122, AA149258, AI184929, AI831205, AI914140, AI825243, AI828310, AA720916, AW016629, AI827812, AI696053, AI631553, AI962314, AI671447, AI917812, W16795, AA338943, AI968277, AI967940, H24914, AA149273, AA338944, AW196482, AA973869, AI962471, AA905468, AI394723, AI874337, and AC004707.
HL YGZ11	8396	966503	1 - 631	15 - 645		N69782, and AI282808.
HL YGY60	8397	740081	1 - 510	15 - 524		AA699729, W04930, AI200342, AI742692, AI571717, N31641, AA255846, AA158572, AI672122, H09986, AI872640, T97584, R11183, AL050099, AF090421, and AF074393.
HL YGW95	8398	795682	1 - 547	15 - 561		AW026243, AI040710, W84710, AW008549, AA573109, AA236651, and W78856.
HL YGR56	8399	733123	1 - 623	15 - 637		AA149383.
HL YGQ29	8400	689972	1 - 423	15 - 437		R37228, R21422, and AI336270.
HL YGQ11	8401	966539	1 - 335	15 - 349		AA251264.
HL YGM76	8402	769835	1 - 438	15 - 452		AI914239, AA164188, AA911297, and AI299137.
HL YGM08	8403	958820	1 - 96	15 - 110		R25343.
HL YGJ76	8404	685240	1 - 552	15 - 566		T48433, AI767091, AC002300, and AC007637.
HL YGH51	8405	871634	1 - 451	15 - 465		R07073, and AC009363.
HL YGD69	8406	754841	1 - 289	15 - 303		AA829595, and R96050.
HL YGB38	8407	709187	1 - 403	15 - 417		H60939, and H60852.
HL YFW38	8408	709185	1 - 378	15 - 392		AA011710, R07553, H90263, and AC003006.
HL YFU24	8409	856392	1 - 523	15 - 537		T93162.
HL YFR17	8410	859567	1 - 779	15 - 793		AW139151, AI871342, AI763244, AI452467, AI553909, AA948409, AA010128, AI222204, AI143693, AI422032, AI273370, AI272906, AA854857, AI139496, R42952, AI192619, AW205762, AA853531, AI498208, AA736392, Z41265, AA010127, AI073814, AI928656, R64374, and R64373.
HL YFP56	8411	871637	1 - 510	15 - 524		AA811657, AI342538, AW204675, AA748459, AA252369, and AL109939.
HL YFO29	8412	690381	1 - 508	15 - 522		AA058482, AI784112, AL022476, and AC004924.
HL YFE11	8413	966519	1 - 641	15 - 655		AA777743, U95742, and AC007216.
HL YFD51	8414	725116	1 - 536	15 - 550		H09377, AW405976, AA281160, AB018260, and AC007868.
HL YFC54	8415	729299	1 - 528	15 - 542		H81232.
HL YEV46	8416	889678	1 - 453	15 - 467		AW016081.
HL YEV42	8417	856395	1 - 571	15 - 585		T95746.
HL YET54	8418	729406	1 - 542	15 - 556		R94090.
HL YET48	8419	721501	1 - 416	15 - 430		R19796.



HLJET17	8420	662764	1 - 406	15 - 420	R10240.
HLJET45	8421	717640	1 - 629	15 - 643	R13145, AW402725, and AA322385.
HLJET59	8422	739151	1 - 523	15 - 537	T72749, and T78529.
HLJET83	8423	781038	1 - 623	15 - 637	AA088553, W27797, AA085803, AA088387, and AA811260.
HLJET37	8424	708623	1 - 622	15 - 636	H73386.
HLJET71	8425	760220	1 - 536	15 - 550	AA234738.
HLJET44	8426	716430	1 - 341	15 - 355	AA074364.
HLJET21	8427	670678	1 - 411	15 - 425	N55397.
HLJET11	8428	966748	1 - 338	15 - 352	H81361, T86913, R11275, and T81629.
HLJET92	8429	561537	1 - 390	15 - 404	AC004904.
HLJET86	8430	488801	1 - 416	15 - 430	H60327.
HLJET70	8431	943886	1 - 739	15 - 753	W79930, AA233418, T87364, A1765694, A1042017, A1672297, T87365, R94396, A1082728, R78669, R32116, A1768587, A1025761, AA564574, A1142898, AW026724, A1183414, AW183773, A1075126, AA127962, A1910695, N34843, A1628624, AW192585, H64364, H48681, AW263057, R32115, and H65991.
HLJET49	8432	722787	1 - 319	15 - 333	T63328.
HLJET72	8433	761359	1 - 465	15 - 479	T62223.
HLJETX40	8434	856401	1 - 447	15 - 461	H97055.
HLJETV57	8435	800224	1 - 196	15 - 210	AA015905, and Z94054.
HLJETU14	8436	658035	1 - 431	15 - 445	T69478.
HLJETI27	8437	856405	1 - 591	15 - 605	AA776723, AA683336, A1767217, and A1286332.
HLJET09	8438	972424	1 - 399	15 - 413	
HLJETQ75	8439	767176	1 - 1007	15 - 1021	AA203659, and AW241874.
HLJETD45	8440	717079	1 - 430	15 - 444	H52699, A1792315, A1792132, AA602938, A1821784, and AA632549.
HLJETK95	8441	973370	1 - 448	15 - 462	Z97832.
HLJETI03	8442	923826	1 - 374	15 - 388	D29106.
HLJETDG74	8443	939025	1 - 468	15 - 482	I11358, Z42104, H17403, and A1016363.
HLJETDG42	8444	713579	1 - 394	15 - 408	H48653, and AC005971.
HLJETDF07	8445	952940	1 - 531	15 - 545	A1475857.
HLJETDD60	8446	740212	1 - 469	15 - 483	AA255936.
HLJETDB08	8447	959076	1 - 375	15 - 389	AA704579.
HLJETCX70	8448	757087	1 - 743	15 - 757	AW136494, AA975914, W01691, T78992, H82694, and A1696519.
HLJETCX34	8449	703910	1 - 507	15 - 521	R93349.
HLJETCX18	8450	943714	1 - 444	15 - 458	N23033, N28696, A1417970, A1379543, A1288223, A1119457, A1119464, A1134536, U46351, A1119324, A1119401, A1134525, A1119341, A1142131, A1037205, A1119484, A1134902, A1134531, A1134527, A1119355, Z99396, A1119418, A1042433, AR054110, and AR066494.

HL YCX02	8451	919563	1 - 486	15 - 500	AI149248, and AC004217.
HL YCU59	8452	679219	1 - 647	15 - 661	N50536, N50591, F25082, F31286, AA708834, AI128677, AI141858, AA496237, AI204314, AI087869, F27745, AI096570, W58285, AW044334, F24116, N93239, F34390, AI097157, N77900, AI694918, AI302021, F28502, F24691, AI216592, AA496229, AI215933, AI185557, N91784, AI015748, AA369658, AI383691, F21399, N93026, F35775, AA249321, F28306, W93864, F24386, AI911727, AI031778, AF161698, and AF086496.
HL YCQ43	8453	825509	1 - 776	15 - 790	AA533040, AL096701, Z92542, AC003007, AC002565, AC007308, AC006111, AC008079, AC007193, AC004526, AC006077, AL031283, AC005015, AC005081, AL133246, AC008101, AC004263, AC005399, AC004882, AC006211, AL020997, AP000512, AL133485, AC016831, AC002365, AC004821, AC007225, AL049776, AF095901, AC004382, AC005519, AC002470, AC020663, Z95116, AC004491, AC004851, AL020993, Z97053, AC005067, AP000047, AC006368, AC006950, AC002472, AP000065, AL049869, AC005089, AC006449, AL121658, AC005180, AC002288, AC005280, AL080243, AC005632, AL049872, AC005057, AC005071, AC005972, AC005037, AC007637, AC004966, AC002126, AC005529, U62293, AJ011930, AF124523, AP000689, AF227510, AC007993, AC005225, AL031295, AL022237, AP000115, Z84469, AC002504, AC005839, AF196779, AC004084, AC007386, AC004859, U91321, and AC005756.
HL YCP63	8454	856424	1 - 354	15 - 368	AA572949, AI088652, and AI911457.
HL YCO03	8455	923844	1 - 658	15 - 672	AA131813, AA131743, AA255495, AA256703, and AL021978.
HL YCM14	8456	657589	1 - 387	15 - 401	R95898, AI719970, AF130247, and AF165138.
HL YCL69	8457	914887	1 - 495	15 - 509	I181370, AA156982, and AA045946.
HL YCF51	8458	725067	1 - 435	15 - 449	T99595, and AI563950.
HL YCF37	8459	949401	1 - 1327	15 - 1341	AL138431, AL042377, AI871691, AI423034, AI419419, AW020150, AI380617, AI801479, AI440117, AL043052, AL044489, AW237905, AI904840, AL118843, AA282951, AW020094, AA225406, AL041375, AW021399, AW272294, AL037910, AI066646, AA551519, AW268322, AI279417, AI800426, AL135357, AA594157, AL138455, AA713946, AI242011, AI635028, AW238712, AI479148, AL041924, AA714110, AA760655, T05118, AI054418, AW275432, AL110373, AI356440, AA720582, AA584765, R98002, F30310, AA286836, AI554471, AA847395, AI445224, AI049643, AI095197, AI270177, AI032875, AA654874, AA808153, AI955029, W02749, AI086646, AW340905, AL042753, AI445297, AI755202, AL022165, AC002558, Z86090, AF205588, AL035420, AC006965, AC004832, AL022721, AC005779, AC005088, AC002563, AC005005, AF196779, AC004987, U91323, AP000116, L78810, AC007283, AC002991, AC010077, AC002477, Z99716, AC005527, AC005409, AP000042, AL022238, AC004383, Z95116, AL035405, AC006480, AC004813, AC002430, AC006211, AC005081, AP000045, AC007899, AC004858, AL096791, AC005291, AC006441, AC007055, Z95114, AC007384, AC002369, AC002401, AC005519, AL008731, AC020663, AC004874, AL023584, Z82206, AL031005, Z84487, U47924, AC005940, AC005180, AC004662, AL008582,

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HLVCCI9	8460	668745	1 - 472	15 - 486	H53582, and AP000692.
HLVYCB86	8461	785544	1 - 444	15 - 458	R78255.
HLVYCB11	8462	967162	1 - 573	15 - 587	AA149546, AA115127, AL17248, AA114945, AL283409, AA164347, and AC006504.
HLVYBX91	8463	790234	1 - 764	15 - 778	AA262444, AA210704, AA262445, and AA825796.
HLVYBV44	8464	485853	1 - 479	15 - 493	
HLVYBN17	8465	463988	1 - 519	15 - 533	AA259030, and AA741004.
HLVYBM44	8466	715879	1 - 442	15 - 456	H52816, and H52779.
HLVYBJ17	8467	664101	1 - 415	15 - 429	T66013.
HLVYBH84	8468	856444	1 - 486	15 - 500	AL046592, W26468, AL039255, AB023228, and AL080133.
HLVYBH68	8469	586582	1 - 684	15 - 698	
HLVYBG85	8470	783508	1 - 472	15 - 486	T98972, AL052248, AA770344, and AL862542.
HLVYBA50	8471	880734	1 - 556	15 - 570	AA827695, and AA833754.

HLYBA06	8472	935611	1 - 527	15 - 541	AA736563, AA642445, AA838190, AA724333, AA669153, AA380354, AI537772, AI114701, AW439555, HI8914, AL119800, AI950671, AW151713, AW302909, AA665146, AW021161, AW304580, AW440545, AW301385, AA704393, AA832077, L35667, AC006538, AP000556, AP000557, AL009031, AF135187, AC005612, AL136297, L76568, U07562, AC007199, Z85987, AP000065, AL050348, AL031714, AC004020, AC006285, AC002326, AC005815, AL133239, AC016025, AC006126, K02579, AC003070, AC004975, AP000509, AL033523, AL031279, AP000690, AC002119, AC002301, AC005211, AF207550, AC004262, AL033517, AC005071, AP000359, AC007128, AC005933, AL024498, AC004051, AP000208, AP000130, U89337, AL031281, AC005952, AC005005, AC004590, AC004017, AC012083, AL022322, AC004887, AF007544, AL133102, AL049636, AC004832, AP000691, AF196969, AF217403, AC005519, AL035684, AC005067, AF111169, AC005377, AL022332, AC004983, AL022330, AC005324, Y07848, AL031664, AC005901, AC004813, AL079304, AC003969, AC005783, AF067844, AL020996, AF200465, AP000030, AC000026, AL024474, AC007639, AC004659, AC007637, AP000553, AL008721, AP000246, AC002059, AL050341, AC004751, AL109802, AL022100, AL080313, AP000134, AP000212, AP000964, AF190465, AL021392, AL049766, AC004775, AC005730, AL079301, AL024508, AL021155, AL022237, AC004458, AC004694, AL022333, AL008582, AL023575, AC005484, Z77249, AL009179, AL049795, AC005907, AL096794, AC006047, AC006509, AP000695, AC012384, AC005756, AC006211, AC007686, AC006013, AL034451, AL139054, AC005585, AL031680, AC005702, AC005081, AF031078, Z99716, Z84466, AL031663, AC004235, AB022785, AL031297, AF030876, Z82189, AC005578, AC002476, AP000008, AC005379, AC004921, AL049611, AC005940, AP000697, AL049712, AC004985, AP000967, AC007011, AC007546, AF030453, AC002070, AD000671, AC005799, AC002565, AL008734, AC006071, AC007790, AC007899, AC004889, L44140, AC001227, Z86090, AP000704, and Z97989.
HLYAX75	8473	767225	1 - 342	15 - 356	AC004242.
HLYAX32	8474	699337	1 - 188	15 - 202	AI926931, T92757, and AC004984.
HLYAU15	8475	782335	1 - 570	15 - 584	AA693492, AW404616, W15342, AA081452, T87195, AA360189, AI984687, T87282, and AL117352.
HLYAS35	8476	856469	1 - 430	15 - 444	AA703693.
HLYAR25	8477	678179	1 - 470	15 - 484	AA193337.
HLYAQ92	8478	792770	1 - 388	15 - 402	AI557306, AI623716, AA831121, AA687968, AA768629, AI458826, AI280154, and N42105.
HLYAQ70	8479	757235	1 - 793	15 - 807	R93501, R91736, R92164, and R93500.
HLYAQ69	8480	754229	1 - 329	15 - 343	R38112, and AL109679.
HLYAN68	8481	815950	1 - 365	15 - 379	AL109628.
HLYAN21	8482	854034	1 - 330	15 - 344	
HLYAN10	8483	964834	1 - 651	15 - 665	AA487424, AA578890, and AI524037.
HLYAL58	8484	736097	1 - 593	15 - 607	HI0627, and R15002.

HLYAL22	8485	856473	1 - 443	15 - 457	AA847181, AA470533, AA484373, AW243954, AI821918, AI821881, AI268334, AI268336, AI805363, AA191659, AA507912, AI470431, AA583218, AA715805, AA583229, AA600869, AA605272, AL038936, AI065038, AI805547, AA683238, AA527209, AI470437, AI500453, AI250083, T60681, AW002350, AW102846, AA468022, AA501718, AI932599, AW277171, AA757775, AI801482, AA326356, AI460009, AI908093, AA811208, AL079683, AI469599, AA947454, AA351235, AA714110, AA578907, AA308328, AA420998, AI817976, AA421078, AI669046, N84446, AA651632, AA492391, AA469451, AL031228, AP000512, AL035530, AC002314, AC000003, AC007666, AL031005, AC005387, AC004821, AL050332, AC005231, U07561, AC005089, AC005015, AL021366, AC005919, AL133245, AC007225, AC005041, AF165926, AC007686, AC005971, AF207550, AC007364, AC005480, Z83840, AC002418, AC005066, AC004806, AC004659, Z95114, AC005102, AL139054, AP000553, U85195, AL133448, M63796, AC004148, AL049776, AP001137, AC007536, AC004972, AC005071, AL135744, AC005250, AP000557, AC006270, AE000658, AC004560, AL096703, AC004386, AL031848, AP000348, AC004098, AP000347, AC004858, AC002073, AL009181, AF053356, AC005034, AC004804, AP000688, AC004878, AC005324, AL049795, AC016025, Z93017, AC005399, AP000359, AC004019, AF129756, AC006064, AL031597, AC005330, AC020663, AC004883, AC005412, AC003041, AL049839, AC005393, U95742, AC005736, AP000010, AP000152, AC004895, AC005519, AF111168, AC007066, Z97054, AL022476, AC002558, AC007216, AL031680, AL049745, Z84474, AP000146, AP000337, U47924, AC004638, AC006285, AC005410, AL022724, AL050338, AL031777, AC005880, AP000117, AL022238, AC004797, AL031283, AL031587, AL031055, Z92542, AC007387, AC009247, AC004967, AL031311, AC007050, AC005484, AC005291, AC002126, AL080242, AF069489, AC002470, AL024507, AC002350, AL022237, AF109907, AL031662, AC004913, AJ003147, AL021707, AF196969, AC002563, AL022316, AC004381, AP000263, AC002312, AC004760, Z93241, AC006130, AL035450, AC004912, AC000353, Z84469, AL078581, AF031076, Z86090, AC005215, U29953, AC005740, AL135783, AC007308, AP000556, AL117354, Z85986, AL049766, AC006315, AL022320, AC006312, AL121653, AC003664, AL049569, AC004755, Z99716, AC000079, AC004848, AL049761, AC002553, AC002565, AL034379, AL132987, AP000692, AD000812, AP000087, AC000026, AC004813, AC005921, AL008720, AL031668, AC005500, AC004167, AC005225, AL117258, AC004998, Z99128, AC003029, and AL121934.
HLYAL11	8486	967173	1 - 327	15 - 341	AA809368, AW190881, and AL240461.
HLYAK36	8487	708028	1 - 356	15 - 370	T92768, and AA682689.
HLYAK34	8488	421604	1 - 430	15 - 444	AA013385, W96162, H84095, AA059069, AA054036, H84089, H86124, AA018232, AA018236, and AA058598.
HLYAJ49	8489	723039	1 - 422	15 - 436	W24486, C06267, R42858, AA978262, AA505146, AI636820, AI143214, AA045249, AI677860, AA491378, AA255801, and AL031297.
HLYAG59	8490	888232	1 - 427	15 - 441	

HLTHS37	8491	708613	1 - 789	15 - 803	T84485, and T84484.
HLTHS02	8492	856560	1 - 346	15 - 360	T81238.
HLTHC37	8493	708620	1 - 625	15 - 639	R51493, and AI702381.
HLTGT83	8494	780903	1 - 446	15 - 460	R58966, AW173238, AW188064, AA847255, and AI808879.
HLTGT36	8495	708027	1 - 863	15 - 877	AW131623, W69435, W69518, AW020239, AW449813, AI381962, AW166061, and AB020725.
HLTGS17	8496	662409	1 - 490	15 - 504	H66393, AA077817, AI357551, AA342901, F19258, AI914706, AW265197, AW074398, AI561335, F31204, AA228329, AA515128, F37286, N71724, AA368745, AA077952, AI886176, AW276435, AA654627, AA714140, AW406659, AA304977, H55859, AI249997, AI305547, AI553983, F29989, AI610159, AI184226, AI345518, N23649, AA584749, AI613280, AA443065, T71998, AI284640, AA580662, AA650244, AW265654, AI003734, AI989742, F17518, AA340003, AI041368, AI287528, AI349874, F28576, AI358229, AI061334, F36273, AW438643, AI569086, AA515224, AI469172, AW406755, AI471481, AI298281, AW270284, AI365988, AA601270, AI557323, AA578154, N43757, AI473090, AA879053, AW151884, AA743956, AW337985, AI801600, AI951928, AI079910, AI286264, AW339687, AA299601, AI872421, AW130799, AI951889, AI445436, T12272, AI890052, AA127636, AI138265, AA450199, AI963786, AI635272, AI708009, AI587006, AA729264, H64560, AI299050, AA341228, AW340844, AI345675, AA665192, AW102955, AI921649, AL079645, AW021747, AI345681, AW168433, AI225141, AW022046, AI801591, AI344844, AI274692, F33566, AA658235, AI807372, AA641103, N25296, AI168185, AI421213, AW274349, AI376100, AI816537, AA745560, AI433187, T06556, AA295899, AW157005, AI824562, AW188544, AA501344, AA745431, AA745410, AI015912, AI499503, AA747472, AI028510, AA483204, AI471464, AA758934, AA605274, AW303196, AL042856, AW301350, N69962, AA626637, AI471487, AA558269, AW074059, AF177861, AA776609, AI688846, AI356904, AI049634, AI340453, AI922654, AI564284, AI537955, AA176924, AC004142, U02048, L13709, M87918, L13713, L13714, AC006379, AC006241, AF002991, AC007488, AC006221, U52427, AL096775, D83989, AC004949, S42659, AC005003, AC005944, U02058, M87919, M87923, AL023284, AC006597, AC004027, AL121603, X55932, AC005722, AL023879, AC005485, U18393, AL035494, AC005225, AC002564, AF077058, Z50860, AF053356, Z49237, AL023807, AP000432, AC005091, AC004998, AC005332, AL050312, S70694, AC002429, AC002347, AC006076, AP000082, AC007750, Z84721, AL031005, AC006538, AB020865, AP000346, U14702, AC009225, U95742, AC002059, AC005771, AC004232, AE000662, U02063, AC003681, AC007226, AL109865, L48472, AL049871, Z83849, AC004028, M94081, AP000431, AC007681, AC005694, AC007917, X55922, AL049829, AI049759, AL050333, AI096702, AL121653, AC004236, AC003954, AC005237, AC005324, I51997, AC009247, AC005032, Z97183, AL022318, AL121658, AC005610, AC005913, AC004765, U80017, AC002984, AC004927, AL078614, AP000128, AP000206, U52112, AP000351, AC004638, AP000114, Z83840, AC005527, AC006537, X55926, AL034400, AC002312, AC004678, AL021918, AC002116,

HLTGR28	8497	693990	1 - 616	15 - 630	<p>AC005330, U73634, AC002480, AP000305, AC006312, AC006285, AC004814, AP000474, AF147277, AC007358, AC004813, AC004975, AL035681, U14703, AL035415, AC005249, AL080243, S70697, AC004799, AF001298, Z97989, AL118507, AC016025, AC006160, AC002310, AL023575, AL009181, AL022323, AF045555, X13921, AC004596, M87916, AC002381, AC005529, AC004460, AC005053, AC006255, Z82173, AL121655, AL031427, AC007057, AC006130, U75285, AC006111, Z82975, AL022302, AC005895, Z84474, AJ003147, AL109802, AC010205, AP000047, AP000245, AC002425, AC005777, U14689, AC009069, AF003627, AF121898, AL031665, AC007676, AF006752, AL035703, AC000097, AC005924, AC007298, AC002563, Z68869, AL080248, AC007304, AL133297, AL109807, AL033522, X53550, AC000379, AC006039, AC004645, AL021879, AC006547, AP000503, AC003982, AC006088, AL031257, X55928, AC005681, U18390, AC006197, AC005099, U72787, AC002352, AC007845, AC001531, AC002350, AC007421, L78833, AL032821, AC007102, AL022336, AC007038, AC006120, AC005081, AC002367, AL022326, AP000465, AC006511, U18394, AC016026, AC005261, AC009479, AP001042, AC004242, AC004969, AC002301, AC007076, AC018769, AL049636, AC004851, AC018767, AC004815, AL035086, AL135744, and AC003108.</p> <p>H56364, D80166, D59619, D80210, D80240, D80212, D51799, D80219, D51423, D80253, D58283, D801030, D59859, D80193, D80195, D80391, D80188, D80227, D80196, D59889, D59927, D80043, D80269, D80038, D80366, D80024, D59610, C75259, C14014, D57483, D59275, D80022, C14429, D80241, D50979, T03269, D59467, D80045, D59502, AA305409, D50995, D80378, D80164, C14389, D59787, C14331, D80134, C15076, D51060, D80268, D81026, F13647, D80949, D51250, D81111, D58253, D80168, AW178893, D51022, AW179328, C14227, D52291, AW177440, D51079, AA305578, AW178775, AA514186, AW378532, D80251, D80248, AI910186, D80133, AW369651, D59695, AW178762, Z21582, C05695, AA514188, AW352158, AA285331, D80522, AW177501, AW177511, C14298, AW360811, D80064, AW352117, AI905856, AW176467, AW375405, AW177505, AW377671, D80132, C14407, D51097, D59373, AW366296, AW360844, AW360817, AW375406, D80439, AW378534, AW179332, AW378540, AW377672, AW179023, AW178905, D80247, D80302, AW352171, AW377676, AW178906, AW352170, AW177731, AW178907, AW179019, AW179024, AW360834, D51103, AW179020, AW360841, AA809122, AW178909, AW177456, AW179329, AW178980, AW177733, AW352174, AW378528, AW178908, AW178754, AW179018, D80157, T11417, D80014, AI557751, AW179004, AW179012, AW178914, AW378525, AW179220, D58246, AW367967, D51759, AW177722, AW177728, AW179009, AW178774, AW178911, AW378543, AW352163, D59503, C14077, T48593, AW178983, AW352120, D58101, T02974, D59653, AW178781, D59627, C06015, D51213, AW378539, AW177723, D45260, D80258, C14975, AW177508, T03116, H67866, AI535850, AI525923, H67854, AW378533, AW367950, C03092, AI557774, AW177734, AW177497, D51221, AW178986, D80228, AI525917, C14957,</p>
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HLTGP47	8498	719975	1 - 433	15 - 447	AW393850, AA194696, and AW274557.
HLTGO89	8499	786674	1 - 594	15 - 608	R24848, and Z43303.
HLTGN92	8500	791185	1 - 358	15 - 372	R83296, H61528, R06428, and AA497003.
HLTGA40	8501	710728	1 - 401	15 - 415	H12953, AA436993, and AA426378.
HLTEZ30	8502	960911	1 - 338	15 - 352	T85564, T84409, AA361578, and R08443.
HLTEZ19	8503	671610	1 - 705	15 - 719	N98660, AI052555, AI033178, R16888, and AA437100.
HLTEX27	8504	927578	1 - 336	15 - 350	N95142.
HLTEV66	8505	772965	1 - 506	15 - 520	AA046570, AI912976, AI810637, AI400892, AI420896, AA317499, N44648, AI085349, T49602, AI825760, AI650498, AA046705, AA782778, II05628, and H17485.
HLTEP45	8506	723375	1 - 524	15 - 538	AA159675, and AC007068.
HLTEM25	8507	678685	1 - 508	15 - 522	R14032, AA825482, H95342, H70614, and AC004921.
HLTEG51	8508	494330	1 - 605	15 - 619	
HLTEG37	8509	417243	1 - 363	15 - 377	W40567, AL040311, AA905330, AA677615, AW205363, and D80009.
HLTEC83	8510	574630	1 - 213	15 - 227	
HLTEC35	8511	574632	1 - 266	15 - 280	
HLTEA20	8512	669900	1 - 582	15 - 596	AA007473, W93011, Z44985, AA430251, and N71668.
HLTDR43	8513	715529	1 - 664	15 - 678	AI953354, H16401, H00613, F09067, R82764, Z38624, and T17430.
HLTDJ17	8514	577379	1 - 657	15 - 671	W56369, H84793, AA913919, AA485021, AC007387, AC006543, and AC006544.
HLTDH96	8515	796560	1 - 275	15 - 289	N72412, and AI689177.
HLTDG59	8516	739699	1 - 340	15 - 354	T81367, AA372287, R50286, W30782, and AL137669.
HLTDG30	8517	693329	1 - 345	15 - 359	H85024.
HLTDB38	8518	456860	1 - 418	15 - 432	R95058, and R83706.
HLTCZ55	8519	732385	1 - 312	15 - 326	AA429774.
HLTCX39	8520	705648	1 - 432	15 - 446	AA157834, and AF095703.
HLTCI77	8521	772458	1 - 356	15 - 370	H84601, and AW379855.



HLTCR77	8522	772457	1 - 373	15 - 387	H84886.
HLTCR11	8523	967559	1 - 335	15 - 349	AA548022, and AC005740.
HLTCM59	8524	442563	1 - 1173	15 - 1187	AA633942.
HLTCI43	8525	715530	1 - 487	15 - 501	R12467, and AB020672.
HLTCI11	8526	967541	1 - 303	15 - 317	AI150147, and AI362692.
HLTCH41	8527	507362	1 - 353	15 - 367	R67858, and AC008033.
HLTBU47	8528	720662	1 - 342	15 - 356	H54393, AA476547, C02267, and AA445910.
HLTBU44	8529	522741	1 - 435	15 - 449	
HLTBS07	8530	954407	1 - 235	15 - 249	AI569948.
HLTBF58	8531	735194	1 - 364	15 - 378	H38593, AA361336, Z99571, and Z83820.
HLTBF56	8532	907024	1 - 513	15 - 527	AA521184, AA766096, AA743785, and AA361334.
HLTBA68	8533	753857	1 - 408	15 - 422	R18278, R17529, AA361271, AA019429, T66081, F12334, and AW025272.
HLTBA41	8534	712721	1 - 653	15 - 667	W78875, AA463793, R10150, AA814668, AA779112, R10157, AI351903, AA361232, and AC004554.
HLTBA35	8535	707243	1 - 366	15 - 380	AA150350, and AA361174.
HLTAM07	8536	954419	1 - 653	15 - 667	AA282169, AA987588, and AA360588.
HLTAK57	8537	735163	1 - 213	15 - 227	N45611, and AA360086.
HLTAA39	8538	710361	1 - 635	15 - 649	W55847, T65532, F11980, AA255754, AA360399, and N45924.
HLTAA27	8539	684649	1 - 377	15 - 391	R73095, R26859, R73096, AA360390, and R27089.
HLMNU01	8540	916641	1 - 484	15 - 498	AA828265, and AW262531.
HLMNQ18	8541	666544	1 - 475	15 - 489	AI076363, AA001640, and AA001228.
HLMMZ09	8542	573837	1 - 458	15 - 472	
HLMMT20	8543	830074	1 - 206	15 - 220	N55558, AA280889, AA095152, T90017, and AC008124.
HLMMR90	8544	575905	1 - 602	15 - 616	T39190, and T40464.
HLMMK61	8545	532605	1 - 492	15 - 506	
HLMMK50	8546	724485	1 - 196	15 - 210	W42656, and AA077151.
HLMMF94	8547	811320	1 - 372	15 - 386	R22164, AI248937, AI084822, AI249135, and AA897402.
HLMMF01	8548	916816	1 - 496	15 - 510	AA837202, and Z82189.
HLMMIE43	8549	714439	1 - 619	15 - 633	AA716681, AI361749, N77694, H65481, AA005280, H64888, AA005196, N58327, AA747865, R94521, AA677973, AI032897, R93670, I173820, H54422, and AC012627.
HLMIY59	8550	878870	1 - 342	15 - 356	AL120141, AF111168, AC005081, AL109798, AC004883, AL022476, AC006441, AC005071, AC005796, AC009263, AC002369, AL049569, AC006064, AL050341, Z98946, AC002430, U62293, AC006312, AL109628, AC006211, AC005189, AC005736, AC007384, AC006023, M29930, AC005057, AC004638, Z81364, AP000689, M29929, AP000248, AC005317, Z68756, AL023553, AC002400, AC004019, AL031289, AC007151, AL031686, AC007011, AP001053, AC004990, AC005225, AC005049, Z93930, AC005562, AP000210, AC005089, AC005332,

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HLMIG57	8551	835799	1 - 473	15 - 487	R81607, and U34932.
HLMHW80	8552	775382	1 - 432	15 - 446	H71175.
HLMHT61	8553	742044	1 - 445	15 - 459	R70530, and AC006392.
HLMHT49	8554	722191	1 - 448	15 - 462	T71093, T71030, AC004033, and AC007050.
HLMHL66	8555	910804	1 - 353	15 - 367	AA313128.
HLMHL03	8556	856859	1 - 171	15 - 185	T49381.
HLMFU46	8557	718075	1 - 430	15 - 444	AA0333893.
HLMFL88	8558	574812	1 - 744	15 - 758	AA884878.
HLMFG79	8559	974552	1 - 220	15 - 234	
HLMFE91	8560	531212	1 - 439	15 - 453	AA229869, AA368329, H48017, AI065031, AL048002, H50031, AI348597, AA056206, H16875, AA704806, AI982994, AA374797, AI251809, H44137, AA303289, T61362, R79396, AI591334, F23268, AA985145, AI114755, AA322161, AW377926, H73306, AI246386, AW377843, AW377863, AW193523, AI871691, AA361244, AA833828, AA640823, AW190277, AA588099, AA526337, AA424280, AI254153, AI252828, N71545, H91047, AI571094, AW089016, F26285, AI281622, AA670108, T54173, M78137, T40210, W27084, AL047666, AI476460, AW377907, AW377921, AI954464, AW377912, AA205911, AA071151, AI811319, AI337065, AA218835, H86579, AI627868, AW390278, N30650, AW081503, AW390250, AI254937, AI816537, AA425924, AA325466, AA310354, AI815583, AI130709, AI536858, AI537995, AW071109, AA613189, AA018923, AA012829, N47820, AW148775, AI814682, AI291439, AA351868, AA836097, AI376454, AI298079, N76059, AA831997, AI018029, AI909640, M77900, AW390555, AA298783, F31634, AA584756, AW023376, AI831172, AW341955, AI475758, AI270149, AA424008, AW247089, AA287502, AA550989, R70884, AA320095, C06028, AW029626, AI888050, AI251380, AW377894, AA181479, N91747, AI251949, AI252207, T90931, AI817108, R48131, AI160875, AI024439, AI251996, AI252979, AI254626, AI284684, AW272640, AA668220, AI499376, AI251353, AA515723, R70883, AI251298, AI255012, AW438551, AA565911, AI254440, AW377961, T48770, AW377862, AI251598, AA564753, AA700664, AI252933, AI469468, AA085554, AI2233508, AI254658, AW440451, AA985194, H57324, AI241970, AW086319, AA282530, AI819391, AI627917, AI246059, AI255003, AA372389, AI254673, AA650455, H30595, W38437, AW086334, N92697, H44537, AA071045, AC006211, Z82176, AL035551, AC004671, AC004941, U62317, AL031775, U66060, U66061, AF075037, AC000353, AC005014, AB000462, Z68279, AP000689, AC007425, AL031120, AB003151, AC004216, AC004033, AC006948, AC007731, AC005500, AP000532, AC004611,

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HLMFE79	8561	531213	1 - 388	15 - 402	
HLMFE17	8562	531218	1 - 137	15 - 151	
HLMFD62	8563	754076	1 - 322	15 - 336	AI797595, AW007013, AI498775, AI498624, H09241, AA935139, AA948609, R44566, and Z39116.
HLM DX01	8564	921546	1 - 401	15 - 415	AA232886, and T81241.
HLM DH08	8565	960055	1 - 814	15 - 828	AI423013, AW058211, AA700642, AW027855, AI709117, AI673385, AW339470, AI161207, AA694181, AI276286, AI216865, H54304, H54097, T99459, T98863, AA669188, AW386076, and AB033044.
HLMDC26	8566	684911	1 - 452	15 - 466	N23041, AW380413, AA078090, AL048960, N28704, AC005088, AF030453, and AJ007798.
HLMCL59	8567	529908	1 - 586	15 - 600	AA742279, N80170, W03637, and AL031289.

HLMCI55	8568	741635	1 - 425	15 - 439	N77018, AL916826, AW236861, AA429686, and AI623392.
HLMBX91	8569	879359	1 - 846	15 - 860	AA515440, AA601425, AW089625, AA659170, AA620554, T47745, AA516058, AJ056526, AW102811, AL040382, T06754, AI110760, AA593471, AA523833, AA483204, AW440545, AI243789, AA961035, AA502104, AA633892, AW263415, AA640277, AF190465, U52112, AC005412, AC004019, AC003684, AL133163, AC004832, AC004223, AC007216, AC005696, U95742, AC004815, AC005231, AL031283, AC004966, AC005015, AC003101, AC004383, AC003695, Z97054, AC005081, AF109907, AP000045, AC005808, AP000557, AC007546, AC009516, AC008101, AF001549, AC002470, AF196779, AL021391, AC002425, AC007308, AL031311, AC009247, AC007055, AC002350, AL049761, AC007686, AC002312, AF196969, AC005071, Z98941, AC007666, AL117258, AC007225, AC004841, AC008079, Z83844, AL035413, AC004491, AC007011, AL049780, AC006530, AC002558, AC006511, AC003043, AC002477, AF165926, AC005031, Z84466, AC005529, AC002070, AL080243, Z85986, AC002565, AF053356, AC003070, AL022476, AL049709, U80017, AC002300, AC003037, AC005295, AC007731, AC004382, AC006088, AF038458, AL035587, AC005041, AL035659, AC004983, AL049869, AL035458, AP000555, AC005291, AC005102, AJ003147, AC005488, AC006312, AC007676, AF134726, AC002996, AC007151, AC004922, AC003982, AC007227, AC006241, AL096702, AC005520, AC005500, L78833, AC008044, AC002543, AC004878, AC000353, AC004895, AL133353, AL121652, AP000704, AC002375, AC004985, AL109758, AL035455, AC002492, AP000134, AP000212, AC004596, AC004236, AL021977, AL022316, AC005280, AC002476, AC000025, AL031276, AC004797, AC002394, AC005005, AC006064, AC006285, U91323, AC008115, AC005399, AC005519, AL049829, AL008718, AC004884, AF217403, AC005722, AC002301, AL139054, AF111168, AL049776, AL020997, AC005837, AC005839, AL023803, AL033392, AL109984, AC007537, AC005920, AC005480, AP000553, AC008372, AC005702, AC006449, AL034420, U47924, AC008116, AL049540, AC004659, AC007298, AC004887, AC005902, AP000030, AC005736, Z99128, AC006512, AC007226, AP000088, AL121655, AC007421, AL034549, AC005921, AC006480, AC005899, AC000052, AC002302, AP000011, AL035450, AC004685, AC005695, AC002365, AC016025, AB003151, AL035681, AC005778, AC004967, AC006132, AC006487, AL121658, AC006430, AC007919, AC006014, AC004253, AC005225, AL049697, AC004000, AP000115, AC002045, AC006023, AP000556, AL031681, AC004821, AP000039, AC004645, AC004858, AC006111, AC006001, Z82189, AP000501, AL008726, AP000047, AC004150, AL021155, AP000345, AL132712, Z97056, AC005821, U91326, AC005209, AC016830, AC007371, AC005004, AL031670, AC004882, AL096701, AL031289, AL121825, AL050318, AC007387, AP000065, AF047825, AC007688, AL121603, AC006071, AC005585, AL023807, AC005180, AC004149, AC006121, AC005562, AC005940, and AP000248.
HLMBQ54	8570	730952	1 - 454	15 - 468	H72138, and AA594731.
HLMBQ48	8571	560848	1 - 400	15 - 414	AA505108, and N72195.

HLMBN04	8572	615620	1 - 340	15 - 354	T77272, F13388, and AF052103.
HLMAV56	8573	733708	1 - 540	15 - 554	AA234263, and AA262980.
HLMAI82	8574	523694	1 - 100	15 - 114	
HLMAE86	8575	852563	1 - 543	15 - 557	AA056759, A1870884, A1184256, AA287354, AL048819, AA780049, AA658119, AW083033, AW131126, AA812201, AA523491, A1955653, AA102847, A1420177, A1658829, A1860578, AA058437, AW439401, AA700175, AA527995, AW439499, A1299102, A1471747, AA102846, A1767122, AA884538, A1859388, A1813491, AA004770, AA973515, A1016255, AA452810, H22945, A1686317, AW263434, AA074105, AA452925, H09535, N78501, A1865742, AA847674, A1916285, AA310886, A1263292, R41868, A1868055, AA809214, AW439033, AA994606, AA682833, AA004702, AA287405, and A1597574.
HLLCD85	8576	783454	1 - 515	15 - 529	A1478306, A1161172, AA554537, W68698, A1380170, A1085355, A1796561, A1571389, T70262, AA188734, N92493, AW385352, A1216082, AA188572, A1141460, A1357387, AA489805, AA398636, AF108460, AF108461, AC020663, AF108455, and AF108454.
HLKDC76	8577	953502	1 - 1087	15 - 1101	AA161515, AW250345, AW364752, AW248279, AA173349, AA410730, T09386, N28872, AA281341, N33896, AA312252, AA160094, T08124, Z45256, F07609, AA452741, R69813, AA380203, AA256741, N57212, Z43138, A1017337, F07095, T32695, W26853, T35905, AW204528, R14455, A1948689, AA682474, A1378863, AA378888, W27662, A1935695, A1928405, and AA910271.
HLKDB78	8578	773172	1 - 459	15 - 473	AW298414, N39216, AW004711, AW051893, A1375134, A1917477, A1652977, A1291261, AW002993, AW003527, A1016680, A1676093, AA668759, R49090, A1351891, A1498667, A1203099, AA906803, A1356617, A1950955, Z40923, A1783643, A1418750, A1189132, AF069532, and Y16521.
HLKDB02	8579	918870	1 - 458	15 - 472	T55231.
HLEAN30	8580	843294	1 - 442	15 - 456	
HLCD A67	8581	887375	1 - 619	15 - 633	
HKBBV11	8582	965170	1 - 528	15 - 542	AA249141, AA317762, AA323439, R68885, AA657752, AA845804, AA443184, A138096, AC006998, AC005406, AL022396, AC003029, AC004381, AP000008, AP000704, AL021367, AL031595, AC004106, AC008012, AC004087, AP000503, AF134726, AL034421, AL031274, AC002528, AC006536, AC006077, AL133246, AL034371, AL031733, X54486, AL031650, AC000052, AC004033, AC007731, AC005500, AL034345, AL022098, AC004832, AL079299, M26434, AC004231, AC004383, AC005243, AF099810, AC003101, AC020663, AC005354, AC005722, and AC005261.
HKBBP05	8583	928316	1 - 539	15 - 553	A1436366, and H81947.
HKBAL06	8584	934160	1 - 527	15 - 541	A1039905, AA826224, and AA911597.
HKBAJ12	8585	969644	1 - 648	15 - 662	AA742235, AA742234, AA769592, AA828385, and AA804905.
HKBAB02	8586	918568	1 - 584	15 - 598	AA524543, H28219, AA482728, and AC006486.

HJUBA59	8587	888006	1 - 631	15 - 645	AI971330, AI260600, AI870369, AA025208, N48096, AI673475, AW058505, AI864572, R08870, R38658, F10568, R08976, AI887853, AI400250, AI810202, and AA701175.
HJTRB51	8588	470587	1 - 486	15 - 500	AA648882, and AA357310.
HJPDK80	8589	418622	1 - 902	15 - 916	AA210877, AI797681, AI970134, W86482, AA070750, AA214621, AA977114, W86632, AA252120, AA902411, AA742986, AA242915, AA579700, AI468181, AA376316, AW015483, AA811628, AI928274, AI799954, AA040813, AA213789, and AF001549.
HJPDK57	8590	768274	1 - 686	15 - 700	
HJPD116	8591	518105	1 - 343	15 - 357	H29753, AA011703, AI341972, AA477868, AI813605, AA581094, AW027687, AW193238, AW193131, AA101402, AI565781, AI808069, AI475759, AI298622, AI356540, AI148214, AA156318, R50132, AA516279, AI347078, AI161316, W04405, AI635124, AA853039, R22251, N89768, AI248905, AA873149, AI149506, AW088640, AA701646, R39722, H42776, N95630, AI567992, AI591326, AI741983, R70062, W29112, R31096, AA399446, AW405653, AA011503, AW003643, AA628885, AA876220, AW262885, H54242, AW338832, AA353094, AI743581, AA453197, AI188538, W69801, AA282034, AA513733, AA374524, AI088462, H97805, W67620, AW068409, AW368994, AA034935, AA781354, AI933502, W23274, AW374523, R74587, H96595, AW374544, AA477759, AI052491, AA707033, AW051399, AW075651, R92048, AI583545, AI418411, AI888034, AI911293, AW167110, AI735231, AW167100, AI087842, R70016, AA430524, AA535808, H10643, AI828406, AI625243, AA335826, AI921041, AI375407, AW371892, AA775632, AI034439, AA011693, AI572578, AA861696, AI937166, AW075601, AA740399, AI720285, AW292885, H96596, AI525221, and AL035413.
HJFDE23	8592	574115	1 - 231	15 - 245	
HJFDD82	8593	857401	1 - 990	15 - 1004	AA455589, AI091855, AA988340, AA161359, H42568, R07607, AI015867, R07600, R07602, AA441957, AI936472, and AI291961.
HJPCW09	8594	536677	1 - 234	15 - 248	Z44259, H07973, AB015348, AL137622, AL133072, AL133048, AL133040, AI132440, AI243706, and AF087481.
HJPCV54	8595	733607	1 - 575	15 - 589	AA402378, AA464262, AI885402, AI829944, AI921923, AW008540, AI074307, AI005213, AI479060, AI091416, AI684266, AW410641, AI924538, AW337968, AW170092, AW028819, AW242087, AA873160, AI362816, AA857987, AA745265, AI991184, AI222764, AI972124, AI161220, AI538743, AA609827, AI139793, AI336176, AI075402, AI829318, AA443894, AI609956, AI598268, AW194155, AI446095, AI096558, AA838514, AA431854, AA873436, AA864636, AW387090, AI241070, W79486, AA704924, AA872815, AI086820, AI139048, AI151109, AA937584, AI028016, AI805600, AI434504, AA770528, AI619841, AI872263, AA394128, AI090476, AW117881, AI348212, AI027063, AI355882, AI074246, AA488987, AI469710, AA576443, AI304813, AA832041, AA477555, W81550, AA460236, AA536177, AI351451, AI187174, AI368869, AA916469, AI635832, AA488766, F37944, AA724420, AI187204, AI359194, AW387107, N95198, AI827052, AI961866, AA632947, AI346208, AI285018, AW169451, AA431853, AI266343, AA897757, N54144, W52694, AW105713,

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HJPCS54	8596	871807	1 - 734	15 - 748	N95260, and AI668689.
HJPBP22	8597	577455	1 - 133	15 - 147	AI863962, H87372, AF005418, AF115769, Y12657, and AF199462.
HJPBA04	8598	615585	1 - 472	15 - 486	AA136250, AI024917, AI017124, and AA730431.
HJPAZ91	8599	882668	1 - 523	15 - 537	N32734, R67770, AA057568, AA326169, AA322393, R49744, N23508, Z46028, AI360953, R35017, and AF151800.
HJPAY56	8600	909242	1 - 221	15 - 235	AA205091, and AC003002.
HJPAX11	8601	967599	1 - 543	15 - 557	AI985517, and H75687.
HJPA179	8602	781697	1 - 311	15 - 325	AA278629, AA215509, and AA031467.
HJPAG38	8603	709103	1 - 425	15 - 439	N23069, N25298, N25305, and AA356922.
HJPA60	8604	586675	1 - 523	15 - 537	AA044789, AW371891, AA297755, AA044810, AI150008, AA993400, and AI420327.
HJKSC56	8605	578366	1 - 459	15 - 473	
HJBDM21	8606	793381	1 - 437	15 - 451	H48668, H48397, R98819, H48501, AA306570, AI431664, T89386, and AB011178.
HJBDL70	8607	757378	1 - 697	15 - 711	AA306768, T75462, R13593, F13160, AA479890, W22183, C14389, D80022, AA305578, D80043, D59610, C14331, D58283, D80241, AW177440, D50995, D51423, D59467, D80195, D59859, D51799, D80166, D80227, D59619, D51022, D80210, D80391, D80164, D59275, D80240, D80253, D59787, D59502, D81030, D80212, D80196, D80188, AW177501, D80219, AW177511, D59927, C15076, D80269, D80024, D57483, D80038, D80366, C14429, AA305409, D50979, D59889, D80193, AA514188, D80378, D51060, D80268, AW178893, T03269, AW352117, D80045, D81026, D80248, D80522, AW179328, C75259, C14014, D80251, AW378532, AA514186, D80133, AW360811, AW178775, D58253, AW377671, D51250, AW178762, AW352158, C05695, AW375405, AW360844, D80134, D80132, AW178754, AW177505, AW366296, AW360817, AW375406, D80247, AW378534, AW352171, AW179332, AW377672, AW179023, AW178905, D80302, AW352170, AW179024, D59373, D80168, AW377676, AW352120, F13647, AW360841, AW179020, AW178909, AW177456, D80439, AW178906, AW177731, AW178907, AW179019, AW179018, C14407, AW178971, D51079, AW378540, C14227, T11417, D81111, AI905856, AW178980, AW179004, C14298, AW179329,

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HJBDG36	8608	607769	1 - 593	15 - 607	



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HJDBC63	8609	745286	1 - 411	15 - 425	AA112809, AA306231, AA307255, AA668156, AI399709, and AB032255.
HJBDA11	8610	967480	1 - 889	15 - 903	AA306061, AI096918, AI264057, AI288905, AA888803, AI379591, AI473353, AI582909, and AA888914.
HJBCZ05	8611	925805	1 - 855	15 - 869	AA312842, AA305846, AA933807, AA470048, AI800098, AA983700, AA983708, AA737820, AA922195, AA416876, AW194609, AW376741, AW363086, AW197591, AA442519, AI185740, AI282285, AI954659, N47199, AA773604, AA397353, AA640513, AA176983, AI149726, AI479754, AI654305, AA837000, AA744021, H73550, AI792377, R97239, AL120004, AA318894, AA516193, AA279385, AA515733, AI805439, AA209208, AA533054, AA669560, T26476, AI343169, AA445908, H94751, AA070456, AI697425, AA862953, AW150387, AA215470, AI718462, AI866580, AA767983, AI683116, AL040374, AA588353, AA078469, T94072, AA325393, T94140, AA669185, AA084230, AI654520, AW029515, AA504951,

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HJBCM55	8612	732411	1 - 463	15 - 477	AA312262, T83797, AA161328, AA932331, AA679030, AI992290, AI827943, AA431880, AI802124, AL827814, AA431881, AA878982, AA569021, AA862891, AI394363, and Z56903.
HJBBG54	8613	728810	1 - 591	15 - 605	AA278413, AA232658, AA234388, and AA356464.
HJBBF02	8614	921242	1 - 1153	15 - 1167	T64492, H80456, AA102097, T64635, W24542, AA356419, and AI650492.
HJBBE51	8615	725948	1 - 479	15 - 493	N48203, AI718419, AI825815, AA779543, AA356389, AI089156, and AA970766.
HJBBE07	8616	954376	1 - 459	15 - 473	AA069386, and AA356239.
HJBBD59	8617	739633	1 - 506	15 - 520	H10612, AA356365, and R38602.
HJBAP94	8618	796835	1 - 526	15 - 540	AA099056, N76005, AA355858, AA099057, and AA339543.
HJACI60	8619	577525	1 - 553	15 - 567	N23583, AA311407, and R70050.
HJACH13	8620	660943	1 - 362	15 - 376	AI675755, AA927858, AA861302, AA766862, AA311232, AI304365, AI004795, AA759118, AW271713, AI052339, AA853966, R37476, Z40307, AW269006, R41401, and AB002296.
HJABZ11	8621	967665	1 - 436	15 - 450	AA445925, AA310604, AA452033, AW275492, and AW026774.
HJABX39	8622	709556	1 - 686	15 - 700	AI916225, AA310505, W79834, and W79117.

HJABQ75	8623	567249	1 - 1088	15 - 1102	AA309844, AL037632, AL040921, AA601355, AL138265, AI608771, AL135377, AA526787, AI963600, AW131249, AA737309, AA577824, AI685198, AI357778, AI110760, AL120269, AA837677, AI924251, AA507168, U51704, AL138455, AI951863, AW188427, AW088224, AL045053, AW055226, AL037683, AI334443, AA587604, AI859742, AA586458, AA484696, AI053790, AA837740, AA838140, AW162887, AI567674, AW406447, AI963714, AL038705, AI929738, AA456937, AW102811, AA223932, AI654588, AA640277, AL042906, AW085751, AW303196, AA601326, AI963221, AI471543, AW301350, AI284640, AW089927, AA632281, AI204309, AL041690, AA587256, AL046409, AI016704, AA577906, F28204, AI625244, AI133164, AI696962, AW408643, AW274349, AL042905, AA723287, AW021583, AI270117, AI872227, AW072923, AI014358, AA121815, AW130036, AA722198, Z78385, AL120483, AA487872, AA743907, AI246796, AA578832, AI679294, AI110770, T63272, AW008212, AW189303, AL048969, AI445582, AW069769, AA101689, AW407578, AW276435, AA743960, AW089625, AI431303, AI305766, AW247819, AW069819, AI687343, AI375542, AW440545, AA490183, AW193265, AW243793, AL042310, AI499134, AW103509, AW265385, AA078849, AW419262, AI972203, AI679871, AW245747, AA665449, AI610840, AI963720, AA984166, AW406162, AA603445, AA908687, AA812139, AL042853, AA055169, AA643454, AA643457, AI623720, AL046205, AC007191, AC002430, AC009516, AC007384, AL049766, AC005500, AL022163, AL034423, U96629, AP000552, AF053356, AC004491, AL121658, AC004987, AC007731, AL022315, Z98044, AP001053, AC004966, AI246003, AC005527, AC002059, AL031281, AC004913, AF190465, AC005695, AP000504, AC006511, AC004686, AL021453, AC009247, AC007371, AC006285, AC005736, AP000692, AC004832, AC005324, AL135744, AC005914, AL049569, AC004638, AL031311, AC007308, U52112, AC002310, AL096776, AL022322, AC020663, AC002470, AC000026, AC005696, AC005409, AL133245, AL022302, AC005529, AC005015, AC005089, AC004963, AC004033, AB023049, Z83844, AC004895, AC006449, AC000025, AL031283, AC006013, AC004690, AL022238, AL035659, AC005632, AC005081, AL031577, AC007993, AL121653, AC002544, AC005531, AC005520, AC005776, AP000555, AC005180, AL049776, AF129756, AL022323, Z85987, AC005261, AB003151, AC005295, AC004253, AC006111, U91326, AL132987, AF111168, AC004814, AC005829, AC003007, AC007057, AC016025, AC006581, AC004150, AC004805, AL031680, AL031432, AC004019, AC007541, AC002045, AL031662, AC000353, AC002565, AC005004, AC004650, AC005913, AF111167, AC004878, U85195, AL133243, AC002984, AL096701, AL023553, AC009509, AF045555, AC007536, AP000556, AC002476, AC006501, AC005057, AL022316, U62317, AC005387, U91321, AC004821, AC003101, AL024498, AC000134, U80017, D87675, AC006430, AC002115, AC000035, AC005940, Z98742, AL133163, AE000658, AC006312, AC004477, AC004596, AL008719, AC002350, AC003104, AC007676, AL049830, AF196969, AF196779, AL022721, AC016830, AC005920, AC005332, AC005740, AC004217, AP000115, Z86090, AL023575, AC007227, AC006195, AC006441, AC004583, AL109798, Z82244, Z98752,
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HJABK84	8624	783237	1 - 657	15 - 671	N26671, A1826768, N39824, N22700, AW452772, N31174, F05933, A1690795, AA852538, AA309729, A1274627, AW166599, AW195751, and AA300297.
HJABK16	8625	667399	1 - 786	15 - 800	AA210697, AA309665, AA210819, D80022, D80195, D80227, D81026, D80248, D80439, D80269, D80038, D80164, D59502, C14389, D80045, AA514188, D59467, D59275, D80212, C15076, D80166, AA305409, D59619, D80210, D80240, D58283, D80193, D59859, D80391, C14331, D59787, D51423, D51799, D80253, D80043, D81030, D80302, AA305578, D80219, D80196, D50979, D80024, D80366, D80188, D59522, D59927, C14014, D57483, D59610, D80378, D51060, D80133, D51022, D59889, AW377676, AA514186, D50995, AW360811, AW377671, C14429, AW177440, D80268, D80251, D80241, AW178893, D51759, T03269, AW375405, AW360844, D80247, D80949, AW178906, AW179328, AW366296, AW177501, AW177511, AW360817, C75259, AW375406, AW378534, AW352171, AW179332, AW377672, AW179023, AW178905, AW378532, D51103, D80157, D80132, AW177505, C05695, AW360841, D59373, AW178775, AW178909, AW352170, AW177731, AW178907, AW178762, AW178754, AW179019, AW179018, AW179024, AW352117, D51250, D80134, AW179020, C06015, D58253, AW177456, AW367967, AW179329, AW369651, AW178980, AW177733, AW378528, AW178908, AW352158, AW178971, D59695, AW176467, AW178983, AW352174, AW179017, AW179004, AW179009, T48593, AW179012, AW178914, AW378543, AW378525, AW352163, D59503, D80168, F13647, T11417, AW178774, D59653, D59627, AW352120, D80258, T03116, AW178911, AW177722, D58246, A1910186, AW177728, C14227, AW360834, D58101, D80064, H67866, A1525923, C14298, D45260, A1905856, D81111, C14407, C14077, AW178781, A1525227, AW378540, AW367950, AA809122, C03092, H67854, D59317, AW177723, AW177734, D51213, AW178986, A1535850, D45273, A1535686, C14344, Z21582, A1525917, AW177508, D80014, D59551, C14973, D59474, AW378533, D51221, AW177497, D60214, C14046, A1525920, D60010, T03048, A1525925, AA514184, AA285331, A1525215, D51097, A1557774, H67858, C14957, A1557751, AW378539, A1525242, A1525235, AW179013, A1525237, C13958, AW178759, A1525912, AW378542, D51066, C16955, C05763, Z33452, T02974,

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HJABB93	8626	791435	1 - 716	15 - 730	H72083, AA452004, AA354988, AW293726, and AL049869.
HJAAZ32	8627	699727	1 - 371	15 - 385	AA354831, AJ708444, and AA745017.
HJAAV85	8628	783412	1 - 215	15 - 229	AA354395, AA903166, and Y12377.
HJAAR02	8629	921105	1 - 279	15 - 293	AA594156, AA354429, and U73641.
HJAAO07	8630	954263	1 - 447	15 - 461	R20249, AA353931, AA369964, R15221, AA206267, AA035045, H84119, AA375219, AI907126, W28121, and AC005037.
HJAAAC22	8631	779388	1 - 449	15 - 463	AA524524, AW026098, AW027704, AI498221, AI418388, AA255552, AA679996, AW295864, AA255570, AA353905, AI683939, AA064723, AA065071, AI347410, AL096755, and U51559.
HJAAA83	8632	928841	1 - 660	15 - 674	AA352670, AA766931, AA814879, AA642419, AW298724, AI693480, AA747930, and AL023807.
HILBQ12	8633	971556	1 - 346	15 - 360	H47493, R97184, AA352099, and Z94721.
HILBC52	8634	906873	1 - 320	15 - 334	AA258568, AA464583, AA436480, AA352105, AA954703, AA639707, AA234276, AA436533, AA258487, AI675334, and AW292522.
HILBC17	8635	667204	1 - 465	15 - 479	AA885355, AA825637, AI537418, AW263128, AI739203, N40091, AA053510, AA917424, AI357099, AA151745, AW373447, AA809481, AI907261, AF181985, AF179867, and AF161373.
HHEZZ74	8636	934486	1 - 1616	15 - 1630	AI857340, and AC004702.
HHEZT12	8637	969437	1 - 438	15 - 452	AI680404, AA456171, AI590551, AI953875, AI082560, AI084107, AI243212, AA279972, AI473813, AI339075, AW418909, AI245568, AA443105, AI078761, T78012, AW243617, AW139270, AA298137, AI274709, AW244160, AA318651, AA593768, T78174, AA630836, AI198099, AI934002, AI392724, AI141198, and AI341327.
HHEZO92	8638	942859	1 - 881	15 - 895	
HHEZN61	8639	973136	1 - 698	15 - 712	
HHEYE64	8640	973232	1 - 661	15 - 675	AW392670, Z99396, AL119444, AL119319, AL119363, U46341, AL119457, AL119324, AW372827, AW384394, U46351, U46349, AL119497, AW363220, AL119484, AL119391, AL119355, AL119483, U46350, U46347, AL119443, AL119341, AL119439, AL119522, AL119396, U46346, AL119335, AL134920, AL042614, AL119418, AL037205, AL134902, AL134538, AL043019, AL042975, AL134527, AL134536, AL119399, AL119496, AL134531,

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HHEX005	8641	930794	1 - 1666	15 - 1680	AW361847, H10130, H20868, AI480290, AI193053, R70273, R52259, AI459029, H09428, AA453532, AI907803, AI494444, W24783, AI143500, AL122091, and R26514.
HHEWX08	8642	974405	1 - 516	15 - 530	AW148792, AW276827, AI687260, AI613280, AA579366, AI860013, AI364020, AA577906, AI350211, AW193265, AI364026, AW438643, AA483771, AW088058, AA713891, AL036037, AA189117, AI744995, AI431303, AI284640, AI281881, AI270117, AA658362, AI688846, AI061186, AA654761, AA599920, AW193432, AI375710, AI619997, AA613232, AI754658, AA584167, AA490183, AA084725, AW029038, AI962050, AW303196, AW274349, AW274346, AA635442, AL046409, AI355224, AI801591, AI583283, AI345654, AA526758, AI289067, AW301350, AA938105, AL121235, AI929531, AI339850, AA594145, AW408707, AW050498, AI341664, AA808877, AA324164, AA525824, AW419262, AA908468, AA376519, AA664015, AI281903, AI379719, AI287451, AA716348, AA126777, AW406447, AW261871, AA071393, AL134972, AI798489, AA719805, AI382614, AA446657, AA719292, AA526779, AA488746, AI061143, AA601876, AI017024, AI439210, AA350859, F17891, AW089322, AW338086, AI334435, AI167659, AW238542, AI754955, AA346454, AI696962, AA551503, N94233, AA351056, AA577959, AW302450, M86143, AA973803, AA639248, AA586458, AA613227, AA632868, AI358571, AI678316, N29948, AI341548, AW276701, AI040313, AI910609, AA744031, AW072587, AI002834, AA568778, AL044940, AA621858, AW341900, AW073470, AA744077, AA504871, H72402, AI432270, AA776258, AW162049, H85382, AL041706, AA846952, AI370878, AA095074, AA758934, F33795, AA653221, AI986251, AA813902, N29941, AA593247, AL022165, AC002451, AC020663, AP000355, AC005015, AP000328, AC005730, AC003016, AP000512, AP000170, AP000055, AP000123, AC006975, AC004447, AC008372, AC006285, AC002045, AC002549, AC002476, Z97195, AL031584, AC005154, AC005057, AL121655, AL121603, AC004953, AC005074, AC005242, AC006275, AC007030, AC005632, AC002310, AL049643, AC005527, AL080242, AC005694, AC007877, AC004755, AL078463, AF196970, AL078477, AC005740, AC005358, AC007011, AC002307, AC005529, AL049795, AL023280, AC004098, AC005839, AC004947, AF123462, Z97196, AL050308, U72787, U66059, AB020872, AC004381, AC003007, AC004890, AC006333, AC000025, AC004152, AC002077, AL008716, AC016025, U57005, AC004519, AL031575, AC005678, AF003627, AC005746, AL035697, U07562, AL049845, AC004865, AC006040, AL049776, Z98051, Z84480, AC006208, AC005412, AL049742, Z81364, AC012599, AC007363, AC008115, AC006017, AL022311, AC005829, AL031650, AL110292, Z73358, Z82097, AL096791, AF188025, AL008709, AL031054, AC004686, AC004699, AC004477, AC005909, AC006211, AC004960, AC002308, AC004859, AC007878, AC002543, AC002412, AC002430, AL021940, AC004855, AL022323, AP000117, AL109623, AC005150, AF001549, AC006116, Z98304,

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HHEWX06	8643	933879	1 - 256	15 - 270	AL570927, N53790, and AI003414.
HHEWT49	8644	973142	1 - 407	15 - 421	AC005803.
HHEWS01	8645	914746	1 - 604	15 - 618	AI051623.
HHEWQ10	8646	963039	1 - 259	15 - 273	AI021958, N75976, and AC005572.
HHEWM53	8647	973150	1 - 488	15 - 502	
HHEWG06	8648	933874	1 - 308	15 - 322	H71868.
HHEVZ06	8649	933891	1 - 487	15 - 501	H80314.
HHEU76	8650	906956	1 - 532	15 - 546	R21123.
HHEUP68	8651	973215	1 - 687	15 - 701	AW392670, AL119324, AL119319, AL037205, AL119335, AL119457, U46351, AW372827, Z99396, AW384394, AW363220, AL119484, AL119391, U46350, U46347, AL119401, AL119439, U46346, AL119497, AL119355, AL119418, AL119363, U46349, AL119443, AL119444, U46341, AL119483, AL119522, AL134525, AL134536, AL119341, AL142131, AL119396, AL134902, AL119399, AL134538, U46345, AB026436, AR066494, AR054110, AR060234, A81671, and AR069079.
HHEUL05	8652	931045	1 - 573	15 - 587	Z45694.
HHEUD79	8653	774157	1 - 599	15 - 613	R31253, and N76374.
HHEUR81	8654	836730	1 - 705	15 - 719	AA488956, and AI857635.
HHEUP07	8655	952217	1 - 365	15 - 379	AA008595, AA526092, AA548029, AI819569, AI978712, AI872216, AI572693, H73855, AI244758, AI205181, AI270326, AI821493, AW419161, AI732074, AI820988, AL138218, AW023389, AL079804, AL134330, AA984191, AA993198, AI144330, F02412, AA878495,

AA664604, AI084012, H58386, N85991, R42913, W60516, T65997, AW405850, N83375, AW403720, AL120008, AA579278, AI254338, AA747375, AI821044, AA077223, H72688, AW342042, R59868, AW419262, T47739, AA714595, AA557879, AI338509, AL046409, AA747889, AI250747, AA090004, AI223735, H78150, R64126, AI744949, AW193500, AA805841, AA431350, F32668, AA515435, AI792130, AI205126, R44841, AI628288, AI792337, AL119259, AA705118, AA515224, AW438916, AI824562, W92302, AA669961, AA113367, AA228264, AI082510, AI887443, AA317170, AW074398, AA640272, AA595841, AI291823, AL119123, AI312790, AI039809, AI336054, H22977, AA327323, AA095511, AI355587, AA077817, AI792108, AL120343, AI830390, AA904137, AW383952, AA507837, AW088058, AW327961, N76908, AI446205, AI312149, AW338417, AW327960, T57604, AA377730, AW270768, H92369, AI926846, F37169, AI924251, AW008074, AL133862, AI358501, AA610491, AI291037, AI863399, AA503258, AW277174, AA657741, AW271917, AA533408, AL040462, H98660, AI783911, F36373, AL138242, AI929531, AI038990, AI708005, AW193493, AI446518, AI049986, AW406447, H52622, AI932884, AW236342, AI281903, AI963095, AI620585, AI471462, AA662431, AL038901, AI370878, AI120269, AW162049, AI813522, F32710, AI370475, AI925321, F23327, R72392, F29989, F00320, AI110770, AA570416, AW080134, AI753365, AI590406, AI064703, H09327, AA618158, AL041733, D58782, AW193609, AW169537, Y14768, AP000505, AF129756, AC005914, AC005237, AC007014, AC004583, AF086558, AC006130, AL034420, M21533, AB014080, AC006139, AP000514, AC002365, AP000049, AP000116, AP000311, M19822, AC002367, AL021937, AC008372, AL022165, M87914, AC005361, AL035684, AC006088, AC003035, AC007686, AF020503, AC007395, AC006354, AC012085, AL022329, Z84479, AC006128, AC005216, AC008071, AC003668, AC005104, AL035681, AF064863, AC003669, AC005919, AC005244, AL022324, AC006138, AL031666, Z93016, AC008163, AC006023, AL078595, AC000092, Z99943, AC004168, AL031779, AC004079, AL035410, AC005406, AC007666, AC002310, AC000052, AC003087, AC004180, AC006254, U85197, AL050321, AL021878, AC002040, AC004982, AL031224, AE000660, S41998, AC001227, AC004517, AC002101, AL032822, AC004827, AC007023, AC007436, Z83819, AL022327, AC002301, AL035587, AL031589, AL031734, AC000113, AC006111, AC004539, AL049546, AL022312, AC005844, AC005037, AC002364, Z69666, D63861, AC004990, AL021546, AC004467, AP000359, AC004016, Z86061, AL034548, AC007688, AC005152, AL022396, L17418, AC007091, AC006257, AF042091, Z99495, AC005258, AL078596, AL031133, Z98742, AC002543, AL035668, AC005327, AC007225, AP000567, AL033375, Z84490, AC005319, AL132712, AL031296, AC009501, M87918, Z82201, AC004835, AL049733, AL035415, AF111168, AC002558, AL133243, AL033376, AC005899, I59642, Z75746, AC005346, L39891, AC003089, AC003108, AC008125, AL016830, AL008718, AL031312, AL049838, AL021153, AC005608, AP000656, AF006501, AC004475, AC003098, AP000507, AC005911, AI078477, Z85987, AI034379, AC005164, AC004841, AI078593
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HHETN89	8656	786361	1 - 674	15 - 688	W79658, and AA468892.
HHETN03	8657	923009	1 - 630	15 - 644	AI598001, AI393602, AA084609, AW340905, AA744018, AI065031, AI344948, AA714011, AI933714, AI962030, F29968, AI499954, AA837035, AA182731, AI278972, AL119691, AI190247, AA493226, AA602906, AA829044, T11828, AL038842, AA847622, AA775205, AA971196, AA644090, AI311796, AA825827, AA492015, AA622801, AA618035, AI150731, AA687730, AI678468, T67090, AI367473, AA502991, AL135108, AA765925, AA526326, AA515048, AA613624, AA452887, AW150077, AA312559, AI281818, AA679625, H29914, AA581247, AI335995, AA536016, AI821382, AW020094, AI031759, AI799569, AA526625, AL038893, AA559241, AA862183, N71685, AI659023, AW021399, AA486559, AA613761, AA832444, C75622, AA515905, AI754567, AA693366, AW341978, AA664043, AI755214, AI249688, AW150028, AL038705, AA640685, AW193265, AA044966, AA651632, AI818067, T71936, AW188742, F18842, AI345157, AA535216, AI077941, AW021627, AA427470, AA525753, AI039257, AI754105, AA559166, AA587516, AI815097, AI866160, AI701898, R98218, AW022934, AA350648, AA847508, AA176978, AI350211, AI653636, AA613594, AC007546, AC005899, AC004623, AC002115, AP000248, AP000210, AP000132, Z83840, Z85996, AC006468, AL008715, AC004232, AL022336, AC006011, AC005500, AC004598, AC005089, AC003669, AL022238, AC004783, AL031848, AC005225, AC002301, U91326, AC005730, AC005015, AC007160, AC011456, AC005102, AP000208, AP000130, M87912, AC005081, AC005562, AL023804, L24093, AC004745, AC004150, U52111, AC005228, AC005728, AL031662, AC004797, AC002395, AC005520, AC004148, AF134726, AC005399, AC005913, AC005328, AL021546, AC004156, Z97832, AL121593, AC016026, AC000062, AL034418, AL049759, Z98200, AL022165, AC006121, AC005412, AL022315, AL049760, Z82214, AL022302, AC002544, AC005544, AC006111, AC007263, AL031311, AC004996, S42653, AC005387, AP000555, AC005332, AC002425, AC004526, AL121603, AC007279, AC005513, AC005409, AC005884, AP000502, AL035086, AL118512, AL049692, AL078600, AC000118, AC004559, AL050348, AC004696, AC002504, AC002543, Z99496, AF053356,

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HHETK38	8658	973120	1 - 565	15 - 579	AC005476.
HHETH36	8659	901275	1 - 540	15 - 554	AI040349, AA480189, AA027168, AI935351, AI184494, AA927786, AA027167, AA282618, AI968421, AI913352, AI128765, AI302397, AI984941, AA287702, AA933851, F24601, AA938000, T56346, AA326546, T56496, AA365652, AA382209, and AB023172.
HHESV83	8660	780456	1 - 317	15 - 331	AA902215, H18354, AA630672, AA834707, AA019312, AW022433, AA961035, AI268334, AI268336, R44116, N74072, AA320966, AA504877, AA993818, AI811799, AI630176, AI828801, AA484373, AI267269, AW080436, AW148507, AA137013, AA737106, AI110595, AA541423, AW084466, AA402129, AA101689, AA303007, AW265735, AW270343, AA526630, AI932599, AW327548, AI675615, AA442176, AW410354, AA302327, H12071, AA947534, AI753488, AW275719, AA455483, AW302087, AL046205, AI049709, AF034194, AF037630, AI370104, AI224415, AA610219, AA837087, AI334443, H73230, AW022897, AW275971, AW102846, AA568494, AL047349, AL036382, AA743445, AW172928, AA443390, AA533176, H86365, AW302080, T99827, AA523841, AA468131, AA483223, H25921, AA454177, AC008116, Z68276, AP000967, AC004903, AC004896, AL021707, AL035588, AC002126, AL109798, AL035562, AC005005, AP000365, AB015355, AC004043, AL049829, AF053356, AP000431, AL022336, AC004901, U85196, U91318, AC002219, AC004491, AC006318, Z85995, AP000049, AC003075, AC004814, AC006509, AC005179, AC006511, AC008009, AP000959, AE000661,

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HHESS93	8662	791729	1 - 743	15 - 757	N50846, N45661, and H40596.
HHEQV46	8663	718640	1 - 557	15 - 571	N57265, AA282692, AL242959, H71719, H75784, and AW183081.
HHEQT07	8664	952452	1 - 2385	15 - 2399	AI760464, AI767592, AI638548, N32912, AI807501, AI741842, AI279458, AW044672, AI274099, AA431728, AI631609, AI654431, AI139981, AI627630, AI096928, AW451355, AI631656, AI081396, AI796487, AI936118, AA525762, AI221786, AI640766, AW062345, AI207996, AA559026, AI798316, AW452771, AI214760, R60899, AI084691, AA516035, AA504631, AI077969, AA771793, AI339473, AI080052, R21999, R64203, AI287970, AW073288, AI352433, AW083740, W31679, AI280486, R69571, AA258401, AA063284, AA302159, AA758823, N69911, AA935191, H09080, AA040796, R64109, AI424748, N62769, AI823758, R33811, AA933822, AI347371, AI673707, AI673708, AA764746, Z38855, AW071057, N42054, AA747629, AA019766, AI783475, R21998, C01887, and AA507164.
IHEQP75	8665	973104	1 - 515	15 - 529	
HHEQL50	8666	723930	1 - 455	15 - 469	AA083528.
HHEQK53	8667	727812	1 - 690	15 - 704	R22320, and R22319.

HHEQH22	8668	723305	1 - 357	15 - 371	H84643, AI688153, AA481647, AI869837, AW361991, AW029303, AA481414, N34803, AA857012, AI360148, AC006050, AF073926, AF047438, and U49841.
HHEQC89	8669	786603	1 - 474	15 - 488	AA210815, and AI939420.
HHEQC26	8670	679505	1 - 514	15 - 528	AA203563, and AC005164.
HHEQB59	8671	738866	1 - 735	15 - 749	AI003508, AI733556, AI792286, AI792327, AI696480, H28915, AI810218, AA679636, AI924520, AW105710, AI018653, AA678645, AA825445, AL078475, AP000025, AP000026, and AL050302.
HHEQB23	8672	675500	1 - 145	15 - 159	R94836, and AA577023.
HHEPW95	8673	588266	1 - 274	15 - 288	
HHEPW40	8674	588265	1 - 363	15 - 377	
HHEPW11	8675	966789	1 - 347	15 - 361	AA487512, AI697235, AA382130, AA528634, AW316599, H62537, AI345704, AI345794, AW161459, AW161879, AI191343, AI003797, AA936548, AA526032, AW084431, T92788, AI360690, AA856958, AI808173, AI114739, AI446500, AA650108, AI978931, AI886224, AA745570, AA093114, AA299422, R76735, AI697242, AI690474, AI583677, AI692245, AI697239, AA507631, AA494253, AA458752, T06876, AA789098, AA069926, N25034, AA554389, AA668945, F28756, AI047645, AA218835, AI922583, AI623741, AA350375, AA360015, AA209436, AI298557, AA907192, AA808843, AA569494, AA808847, AI358514, AA652675, AA886227, AI045107, AA826006, AA148800, AA148531, AI749306, AA773302, AA320722, AI689198, F33184, AA482693, T90014, AI026710, AI829381, H78921, AA666327, AA493618, AA338216, N38803, AI753549, AI934548, AA578245, AI537023, AI246386, AI560228, AW089952, AI753969, H78281, AI580018, T87818, AA778826, AI190247, H24953, AI150848, AW008231, AW377907, AW377921, AI922805, AW377912, AA303770, AI524712, AL079869, AI929738, AI686563, AW163602, AW162887, AW390555, AW162662, F18394, AI274684, AL045451, AW390278, AI139971, AC007055, AC005844, AL049748, AP000432, AC004217, AC004225, AL034420, AC002312, AL034400, AC016831, AC005585, AC001228, AL096801, AC005531, AL096773, AC005215, AC004858, AC007444, AC004004, AL109839, AL009031, AC002326, AC004477, X76775, Z96104, AC002470, Z93023, AC005516, Z95152, AL132987, AC004997, AF109907, AC000353, AC005280, AC004854, AC005534, AL034371, AL135744, AC007911, AC008119, AC007917, AC003043, AC005200, AC005553, AC007786, AC004999, U80017, AC006071, Z98950, AC004495, AC007964, AC007370, AC005318, AC005409, AL031681, Z97053, AC006101, AC004925, AF017104, AC007182, AC000379, AC004257, U41384, AC005027, AL049780, AC007226, AL121852, AL022322, AF190465, AL135745, D86992, AC006505, M20902, AC009501, Z49154, AF090931, Z98754, AL133371, AL021578, AL133396, AP000066, Z73359, AL035072, AL121892, AC004638, AC005261, AC005736, D88270, AC005902, AC004234, AC004821, AL035660, AL049631, AC006432, U73627, AF061779, AC007671, AC004923, AC007151, AC005839, AC002073, AC005332, AC000087, AC006441, AC008072, AC000071, AC004960, AC004216, AL121655, AL049709,

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HHEPT05	8676	912266	1 - 2504	15 - 2518	AW069598, AW131635, AI669446, AI669022, AI968479, AA628971, AA928346, AA828393, AI245982, AW305033, AI399953, AI478692, AW276504, AA653293, AI082346, N57490, AW264574, AA583342, W72055, AI887350, AW268530, N68244, AW130656, AW131233, AI819853, AA253240, AA167004, AA491296, AA171704, AW273451, AA890295, AI431699, AI061332, AI373431, AI262352, AW196819, AI253535, AW243718, AI831015, AA683296, AA846151, AW316619, AI369009, AI942247, AI302629, AI379246, D29081, AA559882, AA722978, AI128087, AW023413, AA287414, AI433493, AA720906, AW130662, AA463506, N77877, AI253623, AA463439, H24406, AI924613, AW192204, AA397433, AA989368, R46595, R24070, AW089044, W05834, T15472, AI265964, T65426, AI749288, AI923627, AW020937, AA855107, AI378942, AI276045, Z45625, T16609, F09478, AA364112, AI984324, AA961110, R77605, AA402444, AA834097, R58443, F05807, R24122, AA650077, AA658584, AI971866, AA327416, R77606, AA171628, H22552, H43755, and AA720957.
HHEPT03	8677	923410	1 - 1057	15 - 1071	AL138265, AI679782, AI687343, AL048925, AA181773, AL046409, AL042753, AA749158, AI963720, AI431303, AI696962, AW193265, AW327868, AW303196, AI279417, AW274349, AA847499, AI623720, AI696955, AW301350, AI270117, AI345654, AL044940, AI801482, AL038705, AA581903, AI281881, AI754253, AL037714, AI613280, AL041690, AI312309, AA515728, AA720702, AL138455, AW085790, AI986165, AA490183, AA846935, AI061313, AL119984, AA101689, AA470969, AA491814, AW438643, AW276827, AA577906, AA569471, AW088202, AA704393, AI192631, AA723017, AI570261, AI610920, AI249997, AI270559, AA857486, AI457397, AA587604, AI635440, AA621858, AI110770, AW408717, AI559705, R98218, AI679045, AA469451, AA649642, AI246119, AW072587, AI610607, AI962050,

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HHEPN71	8678	588241	1 - 721	W56087.
HHEPM69	8679	588235	1 - 372	15 - 386

HHEPG62	8680	877268	1 - 814	15 - 828	AW007647, AA410428, AA425770, AA702540, AA953885, AA256277, R67851, Z38978, R41246, H41898, Z19699, D62705, A1541468, AL133113, and A75286.
HHEPG59	8681	925436	1 - 529	15 - 543	AA521097, AW268594, AA917092, AA703191, A1580848, AL043152, AW002653, A1146275, A1275894, A1611051, AA029718, A1699998, A1092449, A1242378, Z38987, A1760326, T81076, AA248753, AW393578, AW393562, and T81124.
HHEPF21	8682	956241	1 - 463	15 - 477	A1650932, AW183419, and AL078600.
HHEOG81	8683	588155	1 - 353	15 - 367	N57024, AA412609, AA446493, AA446313, AA412274, AA417161, A1206458, A1024531, A1027971, and N29332.
HHEOA63	8684	744995	1 - 521	15 - 535	T75517, R99167, and T99393.
HHENY02	8685	919775	1 - 361	15 - 375	AA936859, R08108, and AL031120.
HHENW11	8686	887661	1 - 389	15 - 403	AA216412, T99179, A1285753, A1924872, AA442105, A1174766, AA635739, A1250083, A1311684, A1805363, A1254279, A1133164, A729282, AA491449, AA489996, T60940, AA420877, AA490183, AA420452, A1133297, A1223604, AL041619, A1310780, AA493695, AW080777, AC005620, AP000432, AL049795, AC005011, Z97054, AC006079, AC003071, Z95331, AC002073, AC005102, AL121658, AC016831, AC007227, AL021546, AC007938, AC005666, AP001053, AP000556, AC006137, AC006430, AC007226, AC006538, AC005231, AC007688, AC016027, AC007564, AC008055, AC005291, AC003030, AC005244, AC002539, AL022165, AL096701, AP000252, AC004562, AC009399, AC005067, AL049569, U85196, AC006312, AC004263, AP000212, AP000134, AC004491, AC012085, AC008079, AP000043, AP000111, AL035420, AC004796, AL008715, AC007057, AC005899, AF039907, AL031680, AC004999, Z93023, AL021707, AC002126, AC005410, AC006241, AC004234, AL035410, AL049631, Z93930, AC005484, AL024474, AP000251, AC005800, AC006101, AC004149, AC004531, AC006131, AB003151, AP000688, AC004882, AP000300, AC005874, AF134471, AC005412, AE000661, AL035587, AC005722, AC004815, AJ003147, Z98051, AC016830, AL022724, AL122021, AC005480, AP000689, AL031577, AC005049, Z83826, D84394, AC007567, AC005200, AP000030, AF124523, AC004985, AC005921, AC005592, AP000045, AP000113, AC007566, AP000692, AC006511, AC004056, AC005940, AF024533, Z97056, AC004876, AC005189, AL031588, AL031685, AL031848, AC002464, AC005821, AC005225, Z97205, AC005004, AC008067, AL049779, AL031432, AC003982, AC005088, AC002404, AC004910, AC007676, AL008583, U62317, AL049872, AC002119, AC009247, AC005837, AC006581, AL031584, AC005015, AL078584, AL031666, U80017, AC006211, AL009181, AC004408, AC007066, AC005971, AL021918, AC004832, AC004067, AL021578, AL034419, AC007686, AF038458, AC006948, AL135783, AL008582, AC006011, AC004953, AC004973, AL022323, AC007792, AC005786, AC005257, AC005988, AL031274, AC002429, AC004801, AL050318, AC006039, AC004859, AP000065, Z93241, AC005630, AC005280, Z82171, AL022316, AC006509, AC007040, Z99716, AC002477, AC002094, AF049895, AC005839, U52111, AC006126, AC004383, AL096791, AC005300, AC006449, AP000112, AP000044,

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HHENQ08	8687	959262	1 - 431	15 - 445	H68621, H80833, and AC004622.
HHENK21	8688	858290	1 - 798	15 - 812	AA631620.
HHENJ29	8689	690576	1 - 488	15 - 502	AL357399, AI813392, AI769194, AA490985, AA648531, AA971925, N90859, AI074897, AA886373, and AA609916.
HHEND53	8690	728111	1 - 500	15 - 514	II22946, and Z38757.
HHENC71	8691	757844	1 - 530	15 - 544	W95913, and AC003090.
HHEMZ66	8692	586737	1 - 432	15 - 446	AW340990, AW270170, AA913381, AW392670, AL119341, AL119319, AL119457, AL119324, AL119484, AL119391, U46350, U46347, Z99396, U46351, U46341, AW372827, AW384394, AL119497, AW363220, AL119363, AL119355, U46349, AL119483, AL119443, AL119522, AL119439, AL119444, AL119399, AL12131, AL134920, AL037205, AL119401, AL134531, AL119396, U46346, AL119335, AL134527, AL134536, AL119418, U46345, AL134538, AL119496, AL134533, AL042975, AL042544, AL043019, AL042984, AL042433, AL042542, AL042614, AL042965, AL043029, AL134529, AL042450, AL043003, AL042551, AL119464, AB026436, AR066494, AR054110, AR060234, A81671, AR069079, and AR043113.
HHEMW78	8693	773507	1 - 725	15 - 739	AA251113, AA766300, AA651948, AA703557, R94607, AL119319, R94247, AL042551, AL119418, AW392670, Z99396, AL119457, AL119324, U46351, U46350, AL119497, AL119522, U46347, AL119484, AL119391, AL119443, U46341, AW372827, AW384394, AW363220, AL119355, AL119363, AL037205, U46349, AL119401, AL119439, AL119341, AL119444, AL119483, AL119335, AL134525, AL134536, U46346, AL134528, AL119396, AL134531, AL12131, AL119464, AL042544, AL119496, AL134902, AL119399, AL043019, AL134538, U46345, AL042450, AL042433, AL042542, AL042614, AL042984, AL043033, AL042965, AL042975, AL043029, AL043003, D86604, AB026436, AR066494, AR060234, A81671, AR054110, and AR069079.
HHEMV01	8694	916281	1 - 262	15 - 276	R95819, H61040, H61032, and AC003681.
HHEMQ68	8695	752326	1 - 140	15 - 154	AC006991, AC008175, and AC007967.
HHEMQ48	8696	493733	1 - 534	15 - 548	
HHEMN37	8697	708468	1 - 205	15 - 219	
HHEMK77	8698	772115	1 - 255	15 - 269	



HHEMK26	8699	681595	1 - 458	15 - 472	AC004047.
HHEMJ91	8700	789443	1 - 572	15 - 586	R38756, AA169642, AA807905, AW021148, AA746636, W76332, AA041299, W72247, Z40083, AW054820, Z41322, AI089582, AI138777, AW151097, AA041351, AA705107, and Z95152.
HHEMI69	8701	755006	1 - 445	15 - 459	AW197056, AL042891, AA650218, AI359687, AA658543, AI421102, AI809745, AA226084, AA653852, AL080243, AF196779, AL096701, AL121603, AL031291, AC005520, AC005562, AC005081, AC005037, AC003071, AC005102, AC006441, AL049776, AC002369, AC005844, AP000354, AC005057, U80017, Z93017, AL132712, AC006312, AC005071, AC004883, AC005015, AC006057, AC006211, AC016027, AC004859, AC006251, AC007227, Z83840, Z97630, AL049569, AF165926, AC002544, AC004662, AL024507, AC006285, AC007707, AL031685, AC007537, AF053356, AC005011, AF001550, AC007193, AL022316, AC020663, AC004966, AC005484, AF001552, AC007225, AC012384, AL049839, AC016830, AC007688, AC002395, AC004878, AC006946, AC000052, AL008582, AC004815, AL021453, L44140, AL021391, AC007637, AP000248, AL109952, AC005829, AC005786, AC002301, AP000503, AC010205, AC004796, AC004491, AC004019, AC005049, AC007546, AL034420, AF047825, Z83844, AC004814, AC008372, AC004953, AC003101, AP000355, AL022326, AC007686, AC005225, AL109984, AC005722, AC006014, AP000065, AF134726, AL023575, AC004887, AC004084, Z98941, AL031584, AL022315, AC000026, AC002350, AC015853, AC005622, AC006059, AL022476, AC000025, AC002073, AC005529, AC033527, AC004382, AL050318, AF111168, AC005527, AL022336, AC004832, AP000692, AC005031, AC005488, AC003010, AC002059, Z84487, AC008040, AC002119, AL031255, AC002394, AL133382, AL031591, and AC006121.
HHEMI56	8702	469030	1 - 445	15 - 459	AI133448, AI339436, AA401945, AL044340, AL037425, AI014656, AA577824, AI216990, AI569363, AA179163, AI249880, T74524, AW079809, AA524229, AC004491, AL050306, AC005921, AC008033, AC007686, AL031255, AC002094, AC002470, AC005088, AC005796, AC005859, AC005037, AC006241, AL080243, AL049776, AC005844, AC016026, AC005231, AC004859, Z84466, AC002352, AL049540, AC005527, U91323, AC002288, AC007371, AC004707, Z93241, AC007731, AF038458, AC005899, Z82206, AC007057, AC005005, AC004985, AC004019, Z93023, AF030453, AC002300, AC005358, AC002425, AP000557, AC005881, AP000553, AC005519, AC005529, AC004983, AC007263, AC005332, AL031276, AC005940, AC006001, AL096773, AC004821, AC006509, AF207550, AC003071, AC005911, AC005484, AC007308, U47924, AC005520, AP000011, AC005488, AC005841, AL049758, AP000133, AC008372, AC002350, Z98752, AC009516, AL024507, AC006430, AL021707, AL049779, AC005412, AC002549, AC004922, AC002044, AC007226, AC006538, AC005514, AL022238, AC005011, AC000025, AC002400, AC005377, U91326, AC005015, AL031058, AL022336, AP000211, AC005180, AL031283, AC002565, AC005666, AC007685, U91322, AC005602, AL024498, AC012384, AC006251, Z98941, AF165926, AL031228, AC005089, AF030876, AP000555, AL133163, AL035249, AP000512, AC005409, AL022320, AL035086,

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HHEMI09	8703	625459	1 - 448	15 - 462		AA280176, AA722934, AW402500, and AL471831.
HHEMG02	8704	917366	1 - 705	15 - 719		AI361650, AI939413, R13983, AI791644, AI792322, AA312035, AI424010, AW082869, AA911739, N56305, and AI422406.
HHEMG01	8705	916297	1 - 284	15 - 298		R94247, and AA251248.
HHEMD56	8706	733353	1 - 400	15 - 414		AI146808, AA722187, AI990261, AI808778, AW451154, AI983943, AW449490, AI088675, AI492618, AA526969, R76719, AW162759, AA719439, AI880009, H41614, D80207, H97676, AI804223, AA115533, H13188, AA552629, AI796667, H13189, W23735, W35334, AI203992, AW304934, AI150509, AI832722, AW157796, AA115532, and AI916646.
HHEMC41	8707	927255	1 - 457	15 - 471		AW166113, AL119483, AI340151, AA491767, C75574, T47138, AA714110, C75406, AA444166, AI038304, H29914, AI249688, AW151247, H53546, F29968, AA525753, AA829723, AI251429, H47835, AI366180, C75602, AI031759, AA535216, AI572680, AI597580, AI254779, AI744766, AA494313, C75649, H60639, AA630854, AI620376, AI244356, AW103030, AA666295, AA602906, AI754567, AI619933, AI628859, AI150731, H47461, AW302017, AI570943, AI588837, AA779783, W05446, N49298, H88666, AI613465, AA176605, AA458534, H05066, AL047349, AW275432, AI627917, AA133293, AI755214, AI251576, AI571161, AW070532, AI288350, AA303054, AA662573, AI284105, AI306232, AA622801, T50694, AI049999, AI569100, AI077941, AA262752, AW302753, AI590404, AA714011, AA837686, AI144081, AW302711, AW301906, AI583466, N26201, AA452887, AA640710, AI580707, AW274191, AW192599, AW020612, AA218684, AA084320, AA128511, AA904137, AI610360, AL041894, AI829331, AA720582, R92658, AA581247, AA525331, AA828833, AI884383, AF071071, AF170303, AF170304, AF077658, AF071070, I34294, AC010170, AL049694, Z68285, AC009247, AL109952, AL049697, Z99128, AL023807, AP000553, U17576, S77605, AL035086, AC006509, AP000116, M87923, AC006449, AC005207, AC002302, AC003682, AC005776, AL049759, AC006111, AP000239, AC004797, D00591, AC002369, AL109758, AF196779, AL049776, AL080243, AC004033, AL080317, U82828, AC004771, AC002096, AC005377, AL031594, Z83826, S42659, AC000353, AC005747, AC016026, AC002115, AC005520, AC004584, AP000310, AC005065, AL050307, AC006505, AC007050, AF053356, AC005793, AL009183, AC004983, AL031230, AC000003, AL031284, AL096701, AL035071, AC007276, AC005067, AC000025, AF196969, AL022322, Z82245, Z98742, AC005332, AC004242, AC004534,
HHEMC10	8708	969380	1 - 1813	15 - 1827		

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HHEMA35	8709	467295	1 - 725	15 - 739	T69503, H96710, AL1720229, AA180833, and AF115509.
HHEMA07	8710	953200	1 - 446	15 - 460	AA028899, AL1767784, AL093656, H24053, and R17668.
HHELA35	8711	878217	1 - 449	15 - 463	AL042540, AL042026, AL040542, AL042640, AL041808, AL046135, AL044583, AL041936, AL046244, AL043604, AL043201, AL043218, AL046383, AL039689, AL042346, AL044015, AL043425, AL043424, AL045991, AL079876, AL042700, AL044377, AL043468, AL043795, AL043128, AL042245, AL044029, AL044771, AL042712, AL043867, AL049007, AR017908, A78783, A78785, A78787, I03356, I02541, A60975, A61052, A60955, A21624, A25853, A02712, A02710, E12615, AR035193, A84772, A98767, A13388, A21625, A68112, A68104, E14304, A47368, A07700, A02228, A02230, A13392, A13393, I62368, AR031488, I13521, I19516, I19517, A98467, A84776, A18756, A71435, A00781, A84773, A84775, I52048, A93963, A93964, A27396, A95052, I63120, A68114, A38214, AR043602, AR067733, A76773, AR062871, AR017907, AR043603, A84774, AR043601, A22413, A95117, A95051, A18053, AR027100, AR029418, I44531, I28266, AR067734, AR067731, AR028669, AR028668, AR028667, AR028670, A00784, A00783, A18050, AR037157, AR054109, A71440, A44171, A23334, A75888, I70384, I95540, AR018924, A60212, A84746, A60209, A60210, A32110, A63067, A64973, AR067732, A51047, A63064, AR029417, AR018923, A60111, A60211, A48774, A23633, I21869, A29109, A60109,

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HHEKZ12	8712	878267	1 - 428	15 - 442	AL042026, AL040542, AL042640, AL041808, AL042540, AL044583, AL046135, AL046244, AL041936, AL043604, AL043201, AL046383, AL039689, AL043218, AL042346, AL044015, AL043425, AL043424, AL045991, AL079876, AL042700, AL044377, AL043468, AL043795, AL043128, AL042245, AL044029, AL044771, AL042712, A25392, I03356, A78783, A78785, A78787, A61052, I02541, A60955, A21624, A25853, A02712, A02710, E12615, AR035193, A60975, A84772, A98767, A13388, A21625, A68112, A68104, A47368, I01971, A07700, A02228, A02230, A13392, A13393, I62368, AR031488, I13521, I19516, I19517, A98467, A84776, A18756, A71435, A00781, A84773, A84775, I52048, A93963, A93964, A27396, A95052, I63120, A68114, A38214, AR027070, AR043602, AR067733, A76773, AR062871, AR017907, AR043603, A84774, AR043601, A22413, A95117, A95051, A18053, AR027100, AR029418, I44531, I28266, AR067734, AR067731, AR028669, AR028668, AR028667, AR028670, A00783, A00784, A18050, AR037157, AR054109, A71440, A44171, A23334, A75888, I70384, I95540, AR018924, A60212, A84746, A60209, A60210, A32110, A63067, A64973, AR067732, A51047, A63064, AR029417, AR018923, A60111, A60211, A48774, A23633, I21869, A29109, A60109, AR007512, A63072, AR028564, A49700, A25909, AR031375, A48775, A23998, AR068507, AR068506, A86792, A58522, A83642, A24783, I44516, A58525, A24782, A83643, A49045, A91750, AR009152, AR009151, AR000006, I60241, I60242, AR000007, AR028672, E16678, A58526, A82653, AR038066, A58524, I50882, A58521, A91753, E16636, E00974, I84555, A83151, E00954, E00952, E00953, E00955, I08049, I66488, A20702, I66489, I43960, AR021440, A58523, A49987, A37074, A37075, E03165, A06419, A21892, E02221, A10359, E01614, E13364, I12243, I12244, A23997, A49702, A10360, A93016, A13038, E02679, E02104, E02098, A29289, AR020969, A42484, A42481, A52326, E02001, E13740, I09342, E01718, E02003, A89633, E02102, E03550,

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HHEKJ70	8713	955092	1 - 360	15 - 374		H81062, R66623, AA157130, AA709449, AI418982, AI224930, AA555217, AI670713, AI025077, AW024689, AW026453, N34521, AA583083, H11108, AI335880, AA782850, AW051284, AA995800, AI299462, AI749642, AI601228, AA909761, AA862779, AI720508, AI808092, AA191356, AA055048, AW294880, AI745210, AA907529, AI818823, AC003108, and U91321.
HHEJR35	8714	878223	1 - 318	15 - 332		AA017452, and AA058749.
HHEHK04	8715	925717	1 - 929	15 - 943		AI276548, AA447822, AI417105, AA447672, AA256175, AA256234, and AC005368.
HHEHG38	8716	943785	1 - 570	15 - 584		AI807087, AW271548, AI419841, AI538436, AA424573, AA770475, AA742969, AA873728, AA987961, AA972636, W72622, AA947936, AW016152, AA488904, AA826395, AI701287, AW138334, AI632691, AW138149, AW206969, AI350132, AW167659, AI475742, AI298733, AI985561, AI696060, AI334306, AW015583, AI767968, AI523823, AW149586, AI681193, AW139596, AI827183, AW052123, AI801957, AW004849, AA410446, AW015071, AI693271, and AA806974.
HHEGC05	8717	930878	1 - 457	15 - 471		AA706313, and AC004106.
HHEFN76	8718	767770	1 - 687	15 - 701		AI476429, R01739, H81216, and AC002112.
HHEFM41	8719	711954	1 - 764	15 - 778		N79427, AA479328, and AA585287.
HHEFY63	8720	744592	1 - 600	15 - 614		AA429377, and AA451768.
HHEDN70	8721	757106	1 - 376	15 - 390		AA134627.
HHEDN51	8722	734118	1 - 380	15 - 394		AA455618, R68619, AI963632, and R80278.
HHEDN49	8723	588136	1 - 384	15 - 398		AA548611.
HHEDI54	8724	588129	1 - 551	15 - 565		AA001827, and AI874381.
HHEDB30	8725	692086	1 - 550	15 - 564		W07668, AI041812, and Z59034.
HHECT42	8726	588098	1 - 606	15 - 620		AA081780, and AA084623.
HHECM62	8727	934414	1 - 534	15 - 548		AI732599, AA132796, AW205259, AA885330, AA769901, AI609831, AW087786, AI423901, AA313420, and AI791778.
HHECA10	8728	973228	1 - 349	15 - 363		AI904811, AI809990, AA766310, AA493695, AA769402, AI567076, AW275510, AA490183, AA548058, AA757775, T60681, AA568869, AA515334, AI632259, AW002350, AW071163, AA484373, AW408047, AA526630, AA169263, AW023865, AL119691, AW438853, AW407578, AA468022, AI924872, AA491650, AI305766, AI345157, AI580250, AI982555, AA491862, AI783494, AI311927, AI445674, AI368256, AW083402, AW302903, AI687343, AA838190,

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HHEBQ68	8729	752956	1 - 437	15 - 451	

HHEBQ59	8730	739216	1 - 453	15 - 467	Z82182, Z85987, and AL031674.
HHEBO04	8731	615127	1 - 452	15 - 466	
HHEBM89	8732	786088	1 - 453	15 - 467	AW365588, AW365645, AW178374, AW365586, AW365672, AW178440, AW365663, AW375350, AW365798, AW351683, AW365799, AW365784, AW365743, AW365772, AW351664, AI809449, AI738507, AA972625, AI721277, AW178298, AW179229, AW365840, AW365686, AW365631, AI221680, AW375355, AI039710, AW365803, AW365680, AI559604, AA583144, AI200839, AI580997, AW179232, AW365593, AA306854, AW365585, AA280016, Z21375, AA280087, AW178307, AW365767, AW365850, AC005317, and AC005316.
HHEBM53	8733	728087	1 - 459	15 - 473	AL037436, AL044199, AL037443, AL043677, AL043467, AL040576, AL038532, AL041635, AL043537, AL044074, AL045753, AL038838, AL041133, AL045920, AL041602, AL043492, AL044165, AL043775, AL038822, AL041752, AL040839, AL045857, AL046442, AL040745, AL045684, AL040617, AL040332, AL040255, AL040285, AL040342, AL040091, AL040128, AL040168, AL040253, AL0404037, AL044186, AL040510, AL040625, AL045817, AL041142, AL041238, AL047183, AL040322, AL046330, AL041051, AL041292, AL040119, AL047036, AL047170, AL047057, AL047219, AL039915, AL040444, AL046327, AL041131, AL045725, AL049069, AL045990, AL041227, AL040458, AL040553, AL041159, AL044187, AL046150, AL043612, AL041168, AL041955, AL037435, AL040090, AL040263, AL037343, AL040294, AL041197, AL040329, AL039744, AL044274, AL040082, AL044272, AL040148, AL041730, AL041523, AL043627, AL041186, AL046392, AL041374, AL040052, AL043845, AL042135, AL044064, AL038983, AL039316, AL043923, AL043814, AL049018, AL040472, AL043848, AL040370, AL041459, AL043570, AL041577, AL044201, AL044258, AL046850, AL046147, AL040768, AL037727, AL039360, AL046994, AL042712, AL042096, AL040414, AL040571, AL040529, AL046097, AL046914, AL045671, AI142134, AL037335, AL046360, AL080031, AL040238, AL045994, AL039338, AL037323, AL037341, AL041346, AL079878, AL041140, AL041278, AL040155, AL039432, AL047131, AL037295, AL041096, AL041358, AL047012, AL040463, AL045989, AL044227, AL045784, AL040464, AL037279, AL041098, AL041163, AL041277, AL037371, AL043538, AL041324, AL043440, AL039087, AL040621, AL037259, AL043128, AL040075, AL036788, AL048647, AL037352, AL046099, AL041210, AL040149, AL041086, AL041296, AL044162, AL043496, AL041233, AL036230, AL079953, AL079852, AL040193, AL037361, AL036500, AL038761, AL049007, AL041246, AL042700, T23957, T23888, AI525556, AI540967, AI525431, AI541365, AL045340, AI541535, AL042245, AI541374, AI541514, AI541017, AI546891, AL043950, Z30131, AL044015, AL043444, AI546855, T23985, T24112, T02921, T24119, AL039156, AI547039, AL044530, AL036630, AL039504, AW451416, AW013814, AL039555, AL039509, AL039564, AL039538, AL038043, AL039108, AL039678, AL039566, AL039074, AL038837, AL039521, AL039625, AL039648, AL039659, AL039629, AL045794, AL039476, AL043586, AL037726, AL038531, AL039109, AL040992, AL039924, AL039128, AL044407, AL036973, AL042909, AL045341, AL045337, AL044412, AL037051,

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HHEBJ08	8734	858429	1 - 526	15 - 540	AA810477, AI809719, AA767097, AB022537, AL031228, AP000089, AP000142, and D87675.
HHEBB80	8735	775424	1 - 365	15 - 379	AI741540, AA285147, AI828011, AA938365, AA744754, AA748786, and U66589.
HHEBB22	8736	858418	1 - 311	15 - 325	AA580560, AI982808, AA668548, AL047192, H41986, AA372736, AI581037, AA290795, W23553, AW075704, AA730782, AI049701, AA676621, AI904944, AI564301, R88803, AL137946, AA487475, AA297011, AA326452, AI053784, AA296604, AI762302, AI904692, AA804297, AA161492, AI002762, AJ132637, AC006111, AC007421, AC006511, AP000557, AL096701, AC005529, AC002477, AC004033, AC003982, Z83844, AC006261, AC002117, AC005736, AC004813, AL022476, AC005071, AC005932, AC005531, AC007283, AC005971, AP000689, AF003626, AP000512, AC006088, AC005280, AC005288, AC002425, AF111168, AC007637, AC005231, AC007216, AL109827, AL031602, Z99716, AL022327, AC007055, AL022315, AC004491, AC006312, AC005015, AC006130, Z82215, AB023051, AP001053,



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HHEBA86	8737	785413	1 - 529	15 - 543	T51229, AI438982, AA045636, AL263382, and W44735.
HHEAL37	8738	491205	1 - 452	15 - 466	AA846036, AA557945, AI061313, AA601336, AW157128, AI921744, AI038029, AW265468, AA618531, AA554289, AW239465, AA658443, AA828840, AI003068, AI251024, AL121039, AI702049, AA280886, AW021674, AI318548, AI064968, AW162314, AI344906, AI753365, AW023390, AA101744, AA653139, AA644090, AW162332, AA157876, AW237905, AW021847, AI570067, AI114755, AL135490, AA584489, AW148821, AA167656, AW410844, AA533660, AW439703, AW409626, AA828834, AA482682, AA507623, AI345256, AW131109, AI434103, AA631915, AW419389, AI027602, AI174703, AI520984, N99245, AA661583, AA761454, AI270280, AI815425, AA019793, AI254267, AW022796, AA601376, H47461, AW277240, AA847341, AI202777, AI361401, AA428991, AA496042, AI363336, AI149177, AI343808, AI744890, AI684999, AA205931, AI285651, AW029626, AA664963, AW162762, AI914748, AA847499, AA313025, AL135377, T15407, AI860423, AC006468, AC005755, AP000547, AF113694, AC006071, AL049694, AC004257, AC005585, AC006323, AC004997, Z82208, AF165926, AC004263, AF111168, AC007227, Z83844, AC016026, AC004685, AL020997, AC006088, AL031295, AC004000, AL049776, AL031662, AC000039, AC003037, AC005740, AP000692, AF107885, AL133163, AC005971, AC005822, AC007240, AC006449, AC004777, AC004812, AC008055, AL109952, AL034548, AL022165, AC004797, AC005529, AC005003, AL022323, AC005221, AC007934, AC005531, AC007066, AL035659, AC005694, AP000704, AC006581, AC005914, AC005071, AP000556, AC007536, AL133355, AC002310, AC003043, AC005632, AL121825, AC000353, AC003665, AC007308, AC016027, Z97056, AC004552, AC006512, AC005011, AC005288, AL031291, AF207550, AL021391, AL049856, Z98051, AC007845, AC007938, U91326, AC002464, AC002094, AC004801, Z75744, Z86090, AL022316, AL023553, AC006139, AC004972, AC005793, AL035072, AC004832, U91328, AC005826, AC004814, AC002039, AC006315, L78833, AL031427, AL109984, AL034417, AC004883, AC004913, Z97630, AL121652, Z82206, AC000026, AC002425, AC006379, AD000092, AC002316, AC006006, AL031680, AC004848, AC004099, AC005091, AL079340, AC005736,

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HHEAJ78	8739	773538	1 - 342	15 - 356	T50165, T50113, AF083037, AJ131693, AC004013, AJ010770, AB019691, AF091711, and AB018346.
HHEAF06	8740	935355	1 - 873	15 - 887	AA225048, AA486071, AA225002, AA259264, and AA259263.
HHEAD08	8741	959305	1 - 913	15 - 927	AI653055, AW137083, AI206286, AI206167, AI825389, AI635444, AW020480, AW080157, AI572778, AI689157, AA830536, AI872787, AI561356, T49776, AI273189, AI613028, AI627360, AI951062, AJ010953, I89947, and Z82022.
HHEAC20	8742	668948	1 - 445	15 - 459	AB023164.
HHEAA02	8743	932265	1 - 618	15 - 632	AA206987, AA174038, AW408551, T85017, AW407690, AW383801, AW372047, and D38553.
HFSBE12	8744	970629	1 - 306	15 - 320	AA343127.
HFSBB12	8745	971571	1 - 411	15 - 425	AI247356, and AA342973.
HFSBB06	8746	960835	1 - 312	15 - 326	AA687273, AA342970, AA490838, and AA651799.
HFSAZ51	8747	725973	1 - 703	15 - 717	W85737, AA203160, W86374, H73352, H73608, AA342722, and AF085998.
HFSAX30	8748	693419	1 - 370	15 - 384	AA342872, and N50158.
HFSAW27	8749	684668	1 - 359	15 - 373	AA342834, AI968315, AI677905, AA868484, AI867702, AI914523, and T69593.
HFSAU89	8750	785904	1 - 479	15 - 493	AL048376, AA302964, N52560, AA630004, AA526343, AA721530, R86160, AA713765, AI431513, AA078184, AA714073, F05830, AA363003, AI915081, AI884861, H99700, AI803741, F08866, AA741301, AW019964, F35684, AI520967, AI223968, AA663373, AA484892, AA079076, AI300818, AI310992, AA721523, AA678616, AA527954, AI859736, AI859906, AA078137, AI185394, R67701, AA579281, AA742949, N72607, AA664248, AA632556, AA657910, AA636102, AI276360, AA946848, AW084445, AI049701, AI678476, H84412,

AA642809, AA223512, AA748102, AA729755, AI955249, AA766414, AI890324, AA244181, AA970967, AI002762, AI591134, N22153, AW079667, H79586, AA916430, W01323, AA640310, AA572982, R02063, AA937809, AA074143, AW073498, AI343669, AI309121, AI929410, AA595656, AI860535, AI753672, AI869786, AI802533, AI750950, R83068, AI459866, AI683019, AW068596, H67172, AA297195, R8817, AA810376, AA610233, AA523330, AA578231, AW392414, AW243945, D51809, AI077941, AA629731, AI927261, AA226770, R07452, AW341882, AA807579, AA353168, H86579, N63897, T55459, T87883, AA573000, AA481765, AA180775, AA757426, R08220, AA618180, H66755, H66832, AI279417, H86221, F31811, R88803, AA298365, AA527877, AA298394, AA744410, T57077, AA515254, AW237905, AA847427, AI678581, AA578973, AI434037, AA847508, AA593828, AA018923, AA371519, AA862029, AA012829, H43183, AA602935, AI564301, AA961554, AA741403, AA683069, R99076, AA713705, AA856866, AA745351, AA808036, H01243, AW105729, AA745468, AA550959, R93642, AA515172, AA605243, AA740571, AA074351, AI348467, AI973173, AI653783, AA745383, R64640, AI912401, AA653291, AA019003, AA551204, H66831, W35326, AA434346, H90845, AW151761, AF169957, AA568127, AI863287, N52293, AI797998, AA722505, AI871691, AI819262, N40092, AI471455, AI762302, AI583291, AI003137, AA077637, T87102, AA513884, AI687343, AA620510, AI525789, AA738283, F17537, AA747229, AI590404, U91318, AF064861, AC005081, AI132987, AC004796, AC003009, AC003663, AI096775, AP000193, AP000049, AI021155, AC005089, AP000311, L34635, U62292, AI096774, AI109827, AC005620, AC004491, AC004559, AC005971, AC005159, AC003678, AI034417, AC005015, Z99716, U73167, AI009183, U90094, AI109963, L47234, AC006597, U91320, AF045555, AC004815, U63721, AP000503, AC009363, AC007225, AC000379, AC016027, U78027, AC002064, Z98946, AC006130, AC005037, AC016830, AI034423, AI121754, AC007993, AP000030, AC006123, AC005940, AI049843, AC004998, AI035422, Z69707, AF134726, AI030997, AI022302, AC005722, AC002312, Z73361, Z83826, U73330, AI049538, AF097485, AI034351, AB012723, AC008989, AI049576, AC004901, AC005663, AC008122, AC004891, AC003085, AI080250, AI035562, AC005664, AC004883, AI022718, AI049875, AC006547, AC007182, AC007308, AC004585, AC006116, AC002563, AP000117, AC004033, Z83819, AC005768, AC007875, AC004382, AP000210, AP000132, AC004785, AC005476, M84371, AC003690, AC007151, AC005225, AI035405, Z98304, AI132712, AI035400, AC005291, AC005280, AP000128, AP000206, AP000248, AC007279, Z83844, AC005920, AC004150, AP000300, AP000045, AP000113, AC006312, AI049793, AI049869, AI246003, AI020997, Z99758, I34294, AC009178, AC005827, U47924, U80017, AF124523, AC007690, AC006079, AC004953, AC005519, AC008249, AC012099, AC000159, AC003973, AI121658, AC005755, AI139054, AP000299, AP001068, AC004878, Z95331, AI049636, AC003667, AC007528, AC003982, AF196779, AI031577, AC006057, U92971, AF217403, AC005562, AP000245, AC007423, AI031407, L81909, U43589, AJ000219,

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HFSAU84	8751	781861	1 - 462	15 - 476	AA002008, and AA342765.
HFSAT96	8752	504394	1 - 314	15 - 328	AA342649, AI417549, AI015042, AA937811, R10133, and AA809838.
HFSAT48	8753	720843	1 - 734	15 - 748	AW444617, AA127741, AI167643, AI766982, AA127805, AA026398, AI858903, AA026454, AI219704, AW150317, AA342691, and AB032980.
HFSAS86	8754	785851	1 - 371	15 - 385	AA232575, AI640189, AI654402, Z39790, AI569812, AI628986, T32417, R77502, and AA232707.
HFSAR68	8755	675246	1 - 496	15 - 510	AW242724, AL038812, AA847357, AA342457, and AA828137.
HFSAP25	8756	677463	1 - 471	15 - 485	T91860, AA342526, and AL050343.
HFSAK31	8757	504424	1 - 530	15 - 544	AA342210, and AA342211.
HFSAK14	8758	504431	1 - 338	15 - 352	AA342217, T89445, and Z82204.
HFSAJ68	8759	753858	1 - 463	15 - 477	AA342239, AA453470, R88771, H67880, AA453977, and AC006017.
HFSAH34	8760	526472	1 - 683	15 - 697	H98141, AA932231, H13331, AA342176, and AA774480.
HFSAG03	8761	960973	1 - 482	15 - 496	AI608909, AA652060, AA342084, AA297662, AC009247, AC007021, Z73359, AC006305, AC003101, AC005531, AL049776, AL050318, AC007151, AF001548, AC005919, AC003049, AL117355, AL096773, AL022316, AC007637, AL022318, AL022329, AL022311, AL031602, AL023799, AC005670, AC002326, AC004531, AC000379, and AC005800.
HFSAF53	8762	728528	1 - 439	15 - 453	AA187595, AW269861, AI684495, AW269881, AW087253, AA342077, AI468367, and AA972820.
HEOQL52	8763	850966	1 - 399	15 - 413	AW088326, AI566702, T62825, AA483086, AA814532, and AA180167.
HEOPY91	8764	933173	1 - 536	15 - 550	AA283977.
HEOAA49	8765	942561	1 - 731	15 - 745	AW373840, R15032, and T97932.
HEONX61	8766	741864	1 - 324	15 - 338	T91881, AB011135, AC005670, and AC005829.
HEONO64	8767	746660	1 - 587	15 - 601	R98434, R98433, H59682, N54298, H59632, H62487, AW067991, and AB032993.
HEONO59	8768	741361	1 - 848	15 - 862	W37916, AW369323, AL138197, AA292636, AA789205, AA278688, AI077497, AI670821, AW117287, AA608906, AA382777, AA724269, AA278680, AA827227, AI160796, AA600253,

						AI990171, AA625768, W37874, AA421286, AA292637, AA844108, AA917528, AW316905, AA768446, and AF117210.
HEONN02	8769	840210	1 - 364	15 - 378		H81666, R20624, H02596, and AL109758.
HEONL19	8770	575884	1 - 476	15 - 490		
HEONL09	8771	961147	1 - 142	15 - 156		AL042382, AW162194, AL079794, AL119399, AI698401, AI251221, AL079963, AI961589, AI382670, AI829990, AW438793, AI624293, AI811785, AI826225, AW080279, AL036980, AW075645, AI345347, AI824576, AI610667, AI037582, AL037602, AI783821, AA527133, AW022584, AI468872, AI919593, AI890507, AI690748, AI933992, AI446515, AI537677, AI538850, AI923989, AI963224, AI814087, AW170725, AI491852, AI559752, AI634224, AI280747, AI580214, AI868204, AW089233, AW128983, AI445115, AW075484, AI758309, AL046466, AA693314, AW130804, AI922075, AW050850, AL043168, AW081606, AI570872, AI648436, AL121496, AI434134, AI568138, AI628296, AI439745, AI917963, AI921254, AW148423, AI590118, AI564765, AI570966, AL119457, AI866457, AI349645, AW081902, AI623941, AW051088, AI470648, AW409775, AI541048, AI758437, AI802372, AI859991, AI926333, AL037639, AI890907, AI352326, AI307494, AW105601, AA983883, AI580674, AL036673, AW169604, AI670009, AW075482, AW022102, AI554821, AI340511, AI696570, AI916419, AA464646, AL038445, AI564259, AW088882, AI564234, AI540759, AW161156, AW020397, AI866465, AI698391, AI453487, AI446046, AI612885, AW102794, AW071689, AI590043, AI568060, AI620639, AA814990, AI538342, AW161735, AW079336, AI637833, AI802240, AW020710, AW150762, AW163554, AL043152, AI866770, AI277008, AI363957, AI609236, AI289310, AI263331, AI225023, F34800, AI859464, AW008166, AI813868, AI345688, AL048644, AI445069, AI690389, AI566670, AI423105, AI251485, AI621341, AI473536, AI624056, AI539863, AI683099, AI811353, AI744256, AI540674, AI269242, AI354283, AW022682, AW102902, AI830259, AI884318, AW104056, AI874166, AL042544, AI872423, AI744485, AI625209, AI819106, AI648508, AW081449, AW079572, AI812015, AI587156, AW189716, AI873704, AL046618, AI828412, R36271, AI700159, AW007555, AI468959, AI285448, AI352184, AA502794, AW029197, AI624548, AW080079, AI540754, AI890628, AW004886, AI539847, AI911648, AI582932, AI638798, AW051059, AL047172, AI624120, AI499621, AI687166, AI589267, AI318280, AI829327, AW054931, AI918449, AI423326, AI240602, AI620075, AW023338, AW167083, AI355849, AI683590, AI634305, AI687287, AW024564, AI254042, AL046595, AI569579, AI589428, AW085786, AL040694, AI525669, H89138, AI573167, AW149878, AI933926, AI969655, AW020693, AW188554, AI348897, AI610402, AI679550, AA641818, AI273094, AI521594, AL037463, AI284034, AW081143, AI540458, AL038956, AI343091, AI340627, AI784252, AI866090, AI312210, AI345416, AW167918, AI500061, AI491710, AI345612, AW243886, AI335426, AI305745, AI832457, AI241923, AF111851, AB016226, I48978, AL137529, Y11587, I89947, AL137648, AF205861, U49434, AR038854, S75997, AL049283, AF111849, AL049464, AL117394, AL137480,

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HEONL06	8772	935516	1 - 402	15 - 416	AC006211.
HEONK37	8773	707505	1 - 467	15 - 481	H01559, and R27733.
HEONK10	8774	964757	1 - 328	15 - 342	AL159943, and AL109755.
HEONJ18	8775	575888	1 - 325	15 - 339	
HEONI92	8776	792772	1 - 589	15 - 603	T49908.
HEOMX03	8777	922962	1 - 592	15 - 606	AA812058, AA659324, A1582769, AA441788, AL041014, AA708352, AA572960, AL040800, AA810370, N32030, AA553439, AA649642, A1538540, AI445815, A1252506, A1139895, AW082744, F17700, AW265073, AI049831, AW028908, AA678436, AA904253, A1623899, AI270476, A1582890, AA601222, AI888405, AW272641, AA847741, AA810318, N64587, AW276984, AL119691, AA503600, A1623563, AA448838, A1028540, A1090334, AA599063,

				AA655005, R92640, AA128592, AI754291, AI889923, AI870204, AA856969, AI357551, AI284640, AA553465, AI364809, AI291317, AI754955, AA338486, AA121777, AW273218, AW090144, AI301700, T08638, AA934680, AW192330, AW419081, AW238016, N25307, AI524540, AI299050, AA749235, AC006285, AC006312, AP000557, AC006480, AL031447, AC005488, AL121653, AC016025, AC005399, AC006057, AC005519, AC002059, AC004148, AC006449, AC005971, AC007216, AC005531, AL031662, AC004106, Z99128, AC008372, AC004227, AC005695, AF196969, AC007225, AL135744, AC004242, AC003029, AC002316, AC005015, AC005180, AF053356, U91321, AC002350, AD000092, Z97054, AL096701, AC005231, U95742, AP000553, AL079342, AC004841, Z99716, U91327, AC004983, AC004382, AC005632, U95090, AC005225, AC004796, AC011311, AL080243, AC004821, Z93017, AL021453, AC005089, AC004024, AL035659, AC007055, Z94044, AP000555, AP000356, AC005057, AC009516, Z99943, AL121603, AC003026, L44140, AC006001, AL031230, AC005372, AC004882, AL135879, AL121790, AF109907, AL022319, AP000193, AF001549, AL139054, AL031005, AL050308, AC005412, AC005209, AC007676, AL023879, AL031427, AL121655, Z95115, AC005899, Z49237, AC007308, AL031120, AC005182, AP000117, AL022336, AC004098, U95739, AL021391, AC006263, AB020863, AC004895, AC002996, AF107885, AC004686, AC004820, AF047825, AC006111, AF196970, AC005005, AP000688, AC005837, AL132712, AL109628, AL024498, AC007684, AL133246, AC005023, AC005274, AC007263, AC002404, AL022326, AC006211, AP000689, AC002477, AC004491, AC004678, Z97056, AC004253, AL031584, AF064861, AC005037, AC005288, AC003983, AC005102, AC005944, AC005785, AC004816, Y14768, AC004662, AP000967, AC012627, AC004234, AC004859, AF111168, AL109798, AC005379, AC005666, AC004099, AL031294, AC002301, AC002365, AF134726, AC006064, AL132777, AL022320, AC003043, AL049748, AP000558, AL031594, AC007731, AC006141, AL031846, AF002223, AC005796, AL050348, AC006026, AF111169, AC004799, AL033392, AF200465, AJ229042, AC005251, AL133163, AL121652, AC004996, AC004765, AC005200, AL022476, AL031432, AB003151, AC004815, AC004605, AC005736, AC007363, AL035530, AC004084, AL049779, AC004707, AC004212, AL022165, AP000346, D00591, AC003950, AC002128, AC002429, AC004858, AC002310, AP000505, Z84480, AL035683, Z99570, U63721, AC002039, AC005669, AC006132, AC005197, AL049869, AC006270, AC006071, Z98048, U62317, AC007543, Z98051, Z98036, U91326, AR036572, U91328, AF196779, AC004125, AL021978, AF037338, AC006241, AC005500, Z93241, AC005620, AC005696, AP000115, AC004263, AP000313, AL031985, AL023807, AC006121, AC006487, AL031276, AC004694, AC005081, AC002470, AP000692, AF217403, AL049871, AL022329, AC003104, AC005082, AC005529, AL133244, and AL031680.	
HEOMX01	8778	913683	1 - 545	15 - 559	AL049843, AC009248, AC004744, Z70274, Z97055, AC002300, AC005588, Z93023, and AL022334.
HEOMV61	8779	506231	1 - 513	15 - 527	AW263864, AI609972, AI708009, AA136526, AA501614, AI473838, AA584201, AL041706,

					AA862227, AW238542, AI343143, AA828696, AA587995, AW439480, D29019, AI925579, AI732690, AI929746, AI590442, AI133861, AI251576, AI929738, AA342945, AA579366, AI872503, AI307201, AW021886, AI278972, AW238583, AI366555, AI446821, AI734070, AI821467, H58672, AC008372, AC006064, AC002115, AL021937, AC004000, AC005153, AL132987, AL117258, AP000359, AF064861, AC009248, AL049829, AL031280, U91326, AC004678, AC005280, Z82194, AL035587, AC004699, AC004821, AP000512, AL008582, AC005726, AF109907, AL035249, AL049759, AP000555, AC007371, AC004765, AC008115, AC007182, AC008134, AL022326, AC005764, AL023553, L78810, AI239318, AC005620, AL132777, L44140, AC006480, AC004638, AL031650, AL035410, AF196971, AL022476, AL031257, AC005803, AL033525, AC005695, AC007536, AC008984, U73634, AC004777, AL109628, AC005358, AL035450, AL020993, AC002544, AC003112, AC006312, AF165926, AC002073, U62293, AL031577, AC002558, AC003101, Z85986, AC005291, AL023574, AP000248, AC002565, AP000355, AC005531, Z83822, U95742, AL031728, AC004983, AC007312, AC007308, AC006285, AC006530, AC006077, AI739322, AF001549, AC004859, AC004984, AF195658, AC005041, Z84572, AC005288, AC004835, AC004694, Z83844, AL022722, AC005562, AC006270, AC004148, AC004125, AC005197, AC006965, AL109627, AL035072, AE000658, AF001552, AC005353, AC005667, AP000466, U85195, AC002119, AC004810, AC007036, U95740, AL050318, AL096701, AC007560, AL096678, AC007738, AC005740, AL096791, AC005048, AL009031, AC009247, AL034549, AF117829, AC012384, AC007285, AC002375, AC005088, AC005839, AC007227, AC005725, AP000495, AC005911, AC004024, AC004751, AC006539, AC004878, AL031255, AC003108, AC004841, AC005182, AC008154, AC002563, AL031985, AL035681, AL022324, AB023049, AL049830, AL049776, AC004819, AL022313, AB016897, AC005599, Z98044, AC004596, AL133249, AC005261, AC005074, AL022320, AC005057, AP001040, AC004887, AP000494, AC005536, AJ003147, AC003119, AP000038, AP000106, AC007216, AC005004, AL133163, AC002331, AF053356, AL121923, AP000018, AC004477, AF038458, AL133245, AC006449, Z68756, X55448, AC007541, AL022160, Z83840, AC005529, AL121825, AL022318, AC005225, AL117337, AC004797, AF205588, Z97053, D87675, AL022721, AC005480, AC005944, AF196969, AB020863, AC002300, AP000557, AP000514, AC005332, AC004056, AL080243, AC003013, AL023879, AL049780, AL049757, AC004106, AC005971, AP000476, AF003626, AL050312, AP000556, AC005100, Z83838, AP000210, AP000132, AC005206, AC005940, AL049635, AC004687, AC005670, AC007324, AC005324, AC005696, AL132712, AF067844, AC005082, AC004895, AD000092, Z95331, AL021453, AC003086, AL021368, AL031281, AL049872, AJ229041, AL031670, AC007879, and Z82185.
HEOMQ68	8780	753075	1 - 270	15 - 284	T94453, and T94541.
HEOMQ04	8781	931032	1 - 848	15 - 862	N98652, AI718741, AI744439, D59305, AI192651, AI799507, AI185182, AA150851, AI367734, AI689723, N92449, AA070453, N62281, AA045938, AW129608, AA478529, AW250169,



HEOML91	8782	667931	1 - 300	15 - 314	W31286, AA045823, AA780299, AA449362, AW237037, AW008432, AA449623, AA886147, AI924764, N66129, N77569, AA737269, AI796181, AA328292, AA523165, AI934498, AA083786, AI291525, AI475558, AA384850, AA919079, AI928049, AA532529, AI933049, AW021922, AA548761, AW383474, AW383521, AI536641, AI568378, AI280669, AI815855, H43514, AI694909, AA669083, AI912666, AI864383, and I76237.
					Z99716, AC004491, AC003029, AC003037, AC006071, AI049874, AF064866, AC006501, AF111167, and Z96074.
HEOML76	8783	575927	1 - 211	15 - 225	AA931871, and AC006211.
HEOMH63	8784	745146	1 - 416	15 - 430	AA018945.
HEICC56	8785	733383	1 - 154	15 - 168	H72530, N72717, W52505, R84302, AC005328, AC007136, AC004587, AP000694, AC005086, AC005562, AC005231, AC004104, AL024498, and AC004841.
HEIBB84	8786	781994	1 - 394	15 - 408	AA777270, AW207152, AA018758, AA019256, and AA620301.
HEIBB31	8787	697987	1 - 337	15 - 351	AA424812, and AW085011.
HEIBA15	8788	888667	1 - 414	15 - 428	
HEIAX24	8789	677177	1 - 358	15 - 372	AI365988, AW406755, AA587256, F29989, AI358229, AW193265, AI613280, F36273, AA482711, AW029038, AI284640, AW276827, AI350211, T58118, AI570261, AI431303, AI345654, AI281881, AW303196, AW274349, AI434695, AW438643, AW301350, AI334443, AI619997, AI270117, AA826303, AA649642, AI963720, AI918421, AI610159, AW265385, AW088202, AI299050, AI904894, AI254615, AA491762, AW327868, AI358571, AA503015, AA682912, AA653618, AA469451, AI039790, AA843450, AI564185, AA573020, AI358501, AA613227, AA559290, AI567076, AA610491, AI305766, AW270270, AI038785, AA525190, AA587604, AW103758, AA507547, AW276435, AA720702, AI249997, AI047427, AA586458, AI368745, AI801600, AI919265, AA503154, AA581903, AI044940, AI801482, H84783, AA259245, AI307608, AA503258, AW021583, AI732120, AI792518, AW080134, AI457397, AI434706, AI583612, AA810318, AW021207, AA846935, AW406447, AA657918, AW008952, AW071196, AI251436, AI053790, AI267818, T53607, AI890923, AW439558, AA483771, AW088846, AI049722, AW166815, T15977, AI929531, AA148489, AW419262, AA630925, AA837084, AA623002, AI567674, AI281903, N94233, AW304584, AI471481, AI355206, AI754658, AA491284, AI792505, AI688846, AW193432, AI339850, AI251002, AI037683, AI866856, AW238278, AA713815, AI138455, AI133636, AW162049, AW339687, AA515051, AI962050, AI937850, AA847499, AW023389, AI119691, H71429, AA062722, AI754253, AI083946, AW083402, AI886629, AA513141, AW062724, AI133164, AI446464, AI061334, AI635272, AA525824, AA482681, AA631507, AI358343, F28204, AA652057, AA488746, AI499503, AW440836, AI653886, AI048925, AA229785, AA501872, AA350859, AI368256, T29180, AA501614, AA348929, AA502963, AA503473, AI334435, AI250552, AA664407, AI654247, AW304805, AA669251, AI312309, AW020992, AA834667, AA113186, AW167799, AA099892, AW020141, AI251034, AI254770, AI589230, AA659083, AI192631, AW261871,

					AL903462, AA584145, AI469003, AA578918, AL046409, AA496260, AA640986, AI696962, AL138265, AI223626, AI568678, AI291124, AL044858, T08914, AA654771, AA857486, AL043719, AA569471, AI654588, AI298710, AW104748, AI345681, AI345675, AW302117, AW236342, AI284543, AI249853, AI890918, AI344844, AF015160, D83989, A39972, X55930, AF077058, U18398, U57006, I51997, AF015167, U57005, U57009, U18391, U18392, L35531, U18394, X55925, U18390, X75335, X54180, U18395, X55926, U57008, X55932, X55924, M37551, AC004647, U18387, AF015153, U57007, U18396, U18399, X55931, X54179, X54175, X54181, X54178, U18400, X55928, U67801, X55922, AF015156, AF015166, X53550, AC004019, AC007216, X55923, AL035681, AF015157, S75201, AF015158, AF015151, U12584, U12582, AF015162, U67221, X54177, AL022476, U12580, U95742, AC005971, AF015171, AL031662, AC000097, AF015148, AF015169, AC007666, Z22650, S48196, AC006547, AC005778, AF015149, X55927, L47228, AF015170, U57004, U11309, AF015147, AL031257, AC005069, AC016025, AC005566, M96868, AF015150, AC004854, AC004802, AF019114, AC005736, AC002984, AL031274, AL023879, U02532, AL049776, U67831, AC005081, U67231, AC006441, AC008134, AC006040, AC004224, AL049757, AL135744, AC001231, AC006481, AC005747, AP000966, D88268, AC005048, AL049636, AC007151, U67234, AC007773, AP000567, U02507, AL035071, Z49816, U14718, AF015168, AC008033, AC007043, S43650, AC004139, AL021391, AF015165, AC005841, U14719, Z84480, U67832, AC000052, AC004967, AB023049, U12581, AP001043, Z82180, X74558, AC005531, D87008, AC007227, AC007064, Z98050, AC002395, AL109759, U35114, AL080243, U50570, U14713, X96421, AC010197, AP000023, S75337, AC004417, U02531, U18393, U14714, AC004947, AC004812, AC005520, AC000353, U67229, AD001527, AL035423, AC004686, AJ229042, M87919, AC003109, AC005354, AL031256, AL031121, U67825, AF064861, AC006030, AL031904, AL031282, AC005084, AC005924, AC004668, Z93241, AC007447, AC005544, U67233, AC000004, AC007363, AC005280, AC003003, AC004263, AL121934, AL080276, U14711, U14712, AC004408, AC004889, AL050097, AL049635, AC005064, AC004913, AL031073, AP000275, U91322, AC005231, AC016026, AC004534, AC004918, U67211, AP000512, AL078472, U67235, AC008039, AC006305, AC004890, AL035415, AF064863, AC000083, AL033543, AP000432, AC006548, AL078644, AC004544, AC005257, AC002364, AC000075, U14715, AP001172, AL031255, Z97876, AF135028, AC004066, AL008582, AP000105, AP000037, AP000513, Z93023, AC004894, AC006285, AC002128, AF010238, AL022316, AC012599, AC004838, U67226, AL035089, AL133382, AL035659, AL136295, AC004964, AF110324, AF015725, AC004671, AC006312, AL049764, AC005756, and AP000252.
HEIAX11	8790	967272	1 - 412	15 - 426	AI951431, and AW166781.
HEIAU39	8791	861503	1 - 354	15 - 368	AW291698, AW449355, AA077663, and AI624833.
HEIAR07	8792	953626	1 - 396	15 - 410	AA160979.
HEIAJ39	8793	705643	1 - 388	15 - 402	AA262593, AW055245, AA765419, AI268356, and AI919028.

HEIA186	8794	785680	1 - 200	15 - 214	TS2922, TS2923, and AC005368.
HEIAD76	8795	574163	1 - 267	15 - 281	AI355103, F23338, AA503307, AA503142, AI246996, F34506, AA484892, AA507814, AI791659, AA523695, AA365586, AA720582, AI031759, AA587316, AA745524, AI590442, AA714011, AI053673, AA744001, AW304592, AA504951, AA779783, F09355, AI251429, AI580707, AI818362, F17700, AA311357, AA810158, U73647, AC007227, AF196969, AP000501, AC002347, AL031905, AP000300, AP000045, AP000113, AC005632, AC006050, AC007016, AC007536, AC005829, Z95152, AL049548, AC004815, Z69837, AC006965, AL121595, AP000248, AC001228, AL050307, AL049569, AC005914, AC002551, AL133163, AP000555, AC006088, AC004985, AC005516, AL008718, AL109984, AC007435, AC005701, AC002369, AC006505, AC006312, AL023575, AC005375, AP000260, AC006011, AL020993, AL022316, AC005104, AC006077, AF111168, AP000099, AP000116, AC002126, AC008928, AF002223, AP000036, Z99496, AC002316, AC005520, AL021154, AC006241, Z93024, AL049760, AC008115, AC007899, AL031597, AC006455, AP000500, Z84466, AC002425, AP000141, AC005102, AL022326, Z97056, AF207550, AC005587, AC005015, AC007055, AP000088, AC002364, AB023049, AF049895, AC006511, AC006344, Z95114, AL121923, AC005180, Z84480, AL034417, AC004129, D87675, AL022721, AC005089, AC004752, AC004893, Z98200, AC002554, AC005531, AC005231, AL031295, AL117258, AC004674, Z83826, U29953, AC005616, AC016026, AC005544, AC009336, AC004933, AC007292, AC003003, Z95113, Z81364, AC004522, AC005332, Z93017, AC003042, AL049643, Z84469, AC006121, AL133246, AL035588, AC006930, AC004526, AC006409, AL022165, AC004851, AC004876, AC005837, AL034371, AC004811, Z97630, AC007993, and AC004844.
HEIAC62	8796	745672	1 - 245	15 - 259	AP000011, and AP000153.
HD'IMJ27	8797	851806	1 - 498	15 - 512	AA434364, AA631736, AI051874, AA460723, AA502498, AA471086, AI025722, AL132985, AC004447, AC005261, AL031432, AC004560, AL079305, Z83838, AC004030, AC005776, AC005387, Z70050, Z73986, AC007240, AC011604, AL031782, AC004821, AC006222, and AP000164.
HDTLI05	8798	928253	1 - 488	15 - 502	AA769122, AL044520, AL042431, AA648784, AI208877, AI024841, AA804545, AW340113, H82877, R64372, R64371, and AL137391.
HD'TLE28	8799	851830	1 - 454	15 - 468	AA916035, AI246061, AI054090, AI249853, AI284543, AI254770, AI251944, AI251034, AI251203, AI251284, AI250552, N74027, N71579, T60940, AA687542, AI251241, AI223626, W63553, AW303098, AA434346, AA636102, AA827383, N22153, AW073498, AI929410, AI753672, AI750950, AW167909, AW407585, AW019964, AW410286, AI018726, AI860535, AA365893, AL039309, AA468289, AI732682, AI720943, AA653823, T08386, AA133472, AA714073, AI927261, H86579, AA448050, AW089950, AA211734, H43183, AA665304, AI354369, AA018923, AA012829, AL039930, AA559166, AI902426, AA741301, AA094597, AI570805, H63220, AA169234, AI755057, R68503, R99581, AL138065, AW082076, AA527109, T74259, AI174703, AW057873, AA657910, AA179981, AA837796, AI537020, AA084950,

R48980, AA564753, AA411590, AA688266, AA256107, AA599749, AA856866, AA743968, AA837739, AA513884, AA610374, AI133580, AA386055, AA527954, AA429481, AA214457, AA605020, T03928, AI355559, AW238495, AL037006, AW274525, AA748102, AA593036, AI298079, AA515351, AA704037, AI087843, AA424249, AI348467, AA736713, W60035, AA135988, C14599, AI908424, AI871691, AI284105, H30595, AI471455, AW392887, T06518, AI671077, C14576, T03401, AL037777, AA502230, AW082742, AI989742, AI687343, AI459866, AA744095, AI124779, C14880, AA678950, AI761566, AA282231, AI799421, AI434365, H24957, H45806, AI201668, AA501371, AW407632, AI383965, AA321523, AA227858, AI399872, AW151761, AA077796, AA572743, AL031685, AL096712, AP000501, AC002350, AC005952, AC004383, AC020663, AC008085, AL031728, AL021808, AC005920, AC004922, AC002565, AC005815, L44140, AC005926, AB020874, AC005004, Z95115, AC004849, AC006116, AL031659, Z83851, AF064859, AC004000, L78810, AC005088, AC005971, AC002477, AC005666, AC007308, AC002470, AL031255, AC004874, AC004913, AF196969, AL031132, AL035659, AC010197, AC002070, AC005821, AC005015, AF165142, AC006021, AC004132, AC007685, M15366, AC005328, AF196970, AL049694, AL035086, AC006057, U58047, AC003689, AL035249, AC007533, AC006263, AF181896, U72788, AF030453, AC003029, AC007051, AC005181, AC007225, AP000503, AP000067, AL034427, AC005903, U95741, AL008582, AC002483, AL031666, AL008730, AC004941, AC005375, AL035070, U95743, AL139054, AC004682, AC004051, AL031602, AL022320, AL021879, AP000065, AL021393, AC008044, AF165926, Z97054, Z94277, AB014460, AC003030, AC005600, AP000201, AC004934, AP000097, AC004056, U91323, AC004801, AC005386, AL109628, AC007100, AC006070, AF116548, AF029062, AB000876, AC004181, AC004560, M89651, AC005210, AP000230, AP000506, AP000144, AC002394, Z85987, AL035587, AC003007, AL109967, AL132712, AC004999, AL031670, AC006001, AL021578, AB000882, AC002543, AC005184, AL049712, AC005531, AC006083, Z98884, AC005225, AL022721, Z98949, AC004963, AC004491, AL080243, AC006538, AC003685, AL022476, U85195, AF111168, AE000658, AF015262, AJ229043, AP000362, Z98751, AB016625, AC004628, AC008975, AL031575, AL008725, AL023575, AL031230, Z97989, AC005585, AC004832, AC005224, AC007736, AC007066, AC004125, Y10196, AF023674, X54486, AL049849, AL031447, AC005630, AC012085, AP000240, AL133445, AL133275, M33132, AP000319, AP001064, AC000075, AC003072, AC000084, AD000091, AC002491, AC006277, AC006942, AB015355, AC005778, AC005619, AL121923, AC004656, AP000228, AC003678, Y07848, AC005067, Z73358, AC004975, AL031594, AP000167, AP000052, AP000120, AC002375, AC005663, AF155238, AD000092, AL008583, AP001065, AC004815, AL031657, AC004638, AC006251, AC000026, AC004876, AC007114, AC005664, AC004477, AL022398, Z97205, AC007388, AC002059, AF196779, AC005722, AF002223, Z99943, AL136295, AC005209, AC005387, AC004685, AC006543, Z98044, AC005670, AF027390, AF217403, X77825, AL049713, AF134726,				
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						AB029343, AC003036, AL031718, U79895, AB023059, AC004195, AC005546, AC005391, AC004834, AP000509, Z99570, and AL009181.
HDTLB90	8800	969209	1 - 721	15 - 735		AI341704, AI142398, AA813273, AA743887, AI936676, AI075351, AA910854, AI022782, AI147388, AA707809, AI191594, AW149648, AI359585, AA310281, AI189686, N66573, H08536, AI262892, N95604, AA741331, AI248487, AA868324, W02990, N22795, AA262629, AA609701, AI093401, AA659738, H87698, AI027373, AI027121, AA978057, AA983525, N48015, AA720012, AA447262, AI356159, R59460, AI678874, AI952101, T34018, AI142529, AI690064, AA441994, AA992142, N35367, AI187027, AI421750, AA768375, AI079205, AA447137, AI569001, AI860552, AI826993, AI306687, AW080519, AI381210, AI582792, AI040724, AA243615, AI004382, AA586674, AI336096, AI241252, AI591409, AI499068, AW026852, H08537, AW008824, AI123841, AA627439, N72902, AI369126, AI611839, W73025, AI336409, AA441993, AA837530, AA806979, AI886595, AA301661, R59400, T35913, N98833, T25882, W25044, T31881, T81454, H87190, R27910, AI560041, AI560047, T25881, AA723754, AA436622, R27815, AA748322, T81453, AA680083, AI348535, AA861174, AA687982, AA336442, H86836, AF161514, and Z57379.
HDTKX61	8801	806340	1 - 657	15 - 671		AL040934, AI354583, AI811104, AA102590, AI955210, AW005356, AI923908, W72822, AI869691, AA776240, AI097401, AI241672, AA610244, AA136144, AA432194, AW029577, N57854, AW026450, AI913174, AI439590, AA676743, AW173719, AI912350, AI126189, AI246619, W15338, AI573143, N62095, AA632265, AW262961, AW338014, AA599002, AW080405, AW342043, AW170642, AA977345, N57753, AA809373, H24394, AA046519, AA648676, AA159091, AI032839, AA136030, AA583776, H28894, AA848077, F33112, AA910294, AW016492, AA678502, AI916065, N88118, AA350391, R44633, AA082176, H03994, W72821, AW166715, AW149167, H45880, N78326, AA046611, R44522, AI245126, R16997, H03195, AW021036, AA355730, AA598543, AI873982, AI203820, AI559841, H27347, AI590119, AA724015, AI243914, N76000, AW271164, AA482202, AA344508, H28893, H62505, AL117455, and AC004466.
HDTJP10	8802	963456	1 - 606	15 - 620		AI355562, N27028, AA501942, AA365628, W32376, AA365629, AI733856, AW069227, AA847499, AI634187, AW328331, AW023111, AW327624, AA410788, AI791185, AI457313, AA526683, AI284640, AI859438, AI821076, AI056177, AW069769, AA904275, AW341903, AA630854, AI287766, AI491765, AA502991, AA584489, AI254770, AL046409, AA581903, AL079734, AI755214, AI754567, AA228778, AI114557, AA535216, AA515351, AI284543, AI431303, AI754105, AI282479, AW407578, AA809546, AI251034, AI223626, AI250552, AW085751, AI251284, AW271904, AI963720, AL135377, AA669155, AI923050, AA833875, AA833896, AI186438, AI912401, AL047349, AW193265, AW026305, AI133552, AI457397, AW303098, AI305766, AI251203, AI421950, AI419337, AI114733, AW265688, AW023672, AI249853, AW303196, T74524, AI310670, AI199816, AA513851, AW419262, AI049676, AI278440, AI277373, AI284126, AI133164, AW029515, AI587349, AI473995, AW274349,

AW275432, AW301350, AA916430, AI349130, AW021583, AI332615, AA640685, AA613627, AI049630, AA129746, AI679002, F36273, AI267269, AI361090, AW328000, AW157005, AA469451, AI270117, AA491814, AI017251, AW169038, AW073470, AA832016, AW328446, AW167330, T05834, AA584484, AW088846, AI380617, AA610433, AI267356, AI267450, AI669421, AI446623, AW084445, AI065038, AI560085, AI345681, AI345675, AW277253, AP000555, AC005216, AC006509, AC004455, AC007488, AC004963, AP000114, AP000046, AL008583, AF196972, AC003101, AL022323, AC002470, Z93848, AC005527, AL049760, AC006236, U63721, AC004000, D84394, AL049776, AL049643, AC004253, AF111167, AL033527, AC007786, AC005015, AC007216, AL133163, AP000302, AC005261, L78810, AC004109, AC004921, AC003662, AC005409, AC005006, AC002991, AC005529, AC004027, AC002456, AC004386, AL139054, U62292, AC004975, AC005088, AC007151, AF196779, AC006946, AP000563, AC006088, AC005606, AC005971, AF165926, AC007277, AC002316, AP000211, AP000133, AL132777, AL035423, AL020997, AL022163, U78027, U91323, Z82206, AC000353, AB001523, AC004797, AL031683, AC005697, AC005972, AC006080, AC006333, D87675, AC004526, AP000103, AC005907, AL023284, AL035422, AC007546, AL096702, AC010205, AC005005, AC007227, AC005736, AC006511, AC007066, AC005089, AC002314, AF108083, AD000090, AL031589, AC004953, AC007406, AC007664, AC007308, AB026899, AC007934, AC005363, AC002492, AC005184, AL035420, AC005486, AF196969, AF001549, AC002301, AJ003147, Z98752, AC005619, AC005921, AC006157, AC002480, AC005399, AC006014, AC003663, AC007919, AL109952, Z93023, AC007537, AC005484, AC007878, AC003014, AC006238, Y10196, AC005274, AL035695, AP000553, AL133448, AC005288, AC007172, AC000397, AC006312, Z84466, AC005207, AC000025, AC003109, AC005482, AL109829, AC005844, AL078615, AC004033, AC002288, AC006285, AC004032, AC020663, AL035086, AL133245, AL109623, U95742, AC005591, AL049631, AC005225, AC004895, AC004841, AF111168, AC005300, AB023049, AL031432, AC006211, Z85987, AL133396, AC007011, AF207550, AD001527, AC006449, AC005368, AC006050, AL034417, AF114156, AL049856, AC002045, AC003036, AC004534, AC008064, AC005578, AF031076, U80459, AL034549, AC008056, AC005618, AP000031, AC004967, AC005940, AP000500, Z98050, AC004821, AC004890, AL050307, AC005082, AC004234, AF053356, U52112, AC005666, AL049839, AC005763, AC006556, AC007242, AC003963, AC016025, AC005338, AL024498, Z85986, AC007911, AC005331, Z83840, AC008273, AL023575, AC005701, AL110502, U47924, AC005220, AC007637, AC005183, AC007225, AP000557, AC004596, Z69917, AC005488, AC007193, AL096791, AC005669, AC005581, AC005755, AL020993, AC002059, AC004099, Z82254, AL035684, AC007731, AC005520, AC004835, AC005500, Z82243, AC002117, AC004602, Z83826, AC004815, AL035079, AL034548, AC005095, AL035413, AC006026, AC006023, AC009946, AC003102, AL031650, AC005083, AC006071, AL031721, and AC005094.					
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HD TJF29	8803	887186	1 - 676	15 - 690	AI250783, AW391672, AI240525, AW390571, AW391632, AW392670, U46347, AL119324, AL119457, AL043003, AL119484, AL119399, AL119439, AW384394, AW363220, AL119319, AL119443, U46351, U46350, AL119391, Z99396, AL119363, AW372827, AL119497, AL042544, AL119355, U46349, AL119522, U46341, AL119444, AL119483, AL119418, AL119396, AL134530, AL134519, AL134528, AL119341, AL134531, AL037205, AL119401, AL134132, AL134527, AL043147, U46346, AL119335, AL134533, AL119464, AL042542, AL119496, AL134538, U46345, AL042614, AL043019, AL042989, AL042450, AL042984, AL042965, AL042975, AL043029, AI142134, AL042551, AB026436, AR060234, AR066494, AR054110, A81671, and AR069079.
HD TJF05	8804	931977	1 - 589	15 - 603	AA425488, AA496895, AA300351, H55595, AP000556, and AP000557.
HD TJF074	8805	933606	1 - 520	15 - 534	AW293197, AW293194, R09230, AA550736, and AA210814.
HD TJF016	8806	934151	1 - 708	15 - 722	W26496, N57723, N52977, AA004838, H56093, N32636, H54711, R97812, AA422017, AI434982, R34827, AI365246, AW149465, N53236, R97527, W04839, W27301, W17360, AI952152, AW197683, AW300911, R93262, AI627239, AW368243, AW118723, R81605, AW301730, AA347582, N42589, AA521269, AA279227, N35846, N55666, AA279276, AW207386, AA744257, AI791321, AI791441, AA401856, W73744, AA912709, W32659, AI457999, AA035799, W73796, AW149460, AI952156, AA825542, AW043735, AA279170, AA843886, AI004999, AI204320, H43539, AI928422, AI453601, AA628709, AI887910, AA814386, AI138354, AF072880, AF112205, AL110243, AF106683, AF069313, AL110269, AF033186, AF106684, and AF147442.
HD TI G62	8807	851951	1 - 500	15 - 514	AA700898, AA768022, AA813637, AA737687, AA767493, AI590110, and AC004585.
HD TI A48	8808	851944	1 - 760	15 - 774	AI686160, AA758552, AI051885, AL039783, and AA890108.
HD THU79	8809	774217	1 - 570	15 - 584	AA284279, AI027731, AI200797, W47103, W47227, AI693941, AW298283, AI222304, AA815341, AI216510, AA813403, and AF086197.
HD THS05	8810	926048	1 - 887	15 - 901	AA253336, AA252921, AA253337, W22197, H27708, R53233, M85815, AA428556, AI745023, AW367630, AA922917, AW363034, AA705731, H66556, AI952500, AA676981, AA640067, T31521, R02288, H70507, AA011599, AW089024, AW368517, R59789, AA298276, AA878199, H91633, R06356, N99822, and AB018271.
HD THP45	8811	841796	1 - 436	15 - 450	AC007458.
HD TH I02	8812	918728	1 - 468	15 - 482	AA441986, AA441987, AI051488, AL119444, AL119363, and AL134538.
HD TH G69	8813	754464	1 - 347	15 - 361	R05736, and AC001226.
HD TH E32	8814	851964	1 - 686	15 - 700	AW295293, AA005236, AW293791, AA564263, AA005235, and AL024494.
HD TH A77	8815	771334	1 - 594	15 - 608	R54682, T83899, AA028933, T86103, AI700021, and T83729.
HD TG T62	8816	742828	1 - 479	15 - 493	R10737, R10755, and AW206939.
HD TG Q31	8817	697539	1 - 368	15 - 382	W57998, AA082443, AI979163, N50386, AA730309, AA282104, AL046056, and AF191338.
HD TG H10	8818	963966	1 - 399	15 - 413	AA968621, and AA911679.

HDTC27	8819	682687	1 - 417	15 - 431	T84741.
HDTFX46	8820	915075	1 - 489	15 - 503	T91421, A1244540, W95696, AA513866, and Z69706.
HDTF142	8821	713399	1 - 552	15 - 566	AA251180, and AA284335.
HDTR93	8822	792077	1 - 654	15 - 668	R56502.
HDTFN38	8823	706752	1 - 592	15 - 606	N67992, AA018753, AA216176, and AC007283.
HDTFI27	8824	682705	1 - 635	15 - 649	AI424830, AI457466, AI670852, AW188237, AW339932, AI373737, AW299809, AW299801, T65024, AI215514, AW268571, AI275416, AI806477, AI420494, AI431933, AI697604, AW194622, and H18633.
HDTFG15	8825	913812	1 - 518	15 - 532	AI948523, AI870933, AI056919, AI951357, AI669067, AI421240, AI829531, AW026102, N95469, AA761710, AI422906, AI985084, R39935, AI500548, T58434, AI971673, AI620958, AI368450, AA825904, AI950288, T58466, T16707, AA903364, AI648626, AA262655, D25575, C21036, and AA255726.
HDTE62	8826	587822	1 - 753	15 - 767	AA058837, H85875, AA866204, D62678, and AW023681.
HDTEJ57	8827	872215	1 - 462	15 - 476	H14223, and R90827.
HDIDS89	8828	799881	1 - 258	15 - 272	AL121748.
HDIDS44	8829	799863	1 - 430	15 - 444	
HDIDP20	8830	883680	1 - 412	15 - 426	T11249, AF207598, AF157833, AF205065, and T11264.
HDIDP02	8831	919572	1 - 436	15 - 450	N46884, AI741360, AA677764, R10708, AI751761, AA694111, AI333381, AW305001, AI538973, N71175, AA779766, AI589032, AI086570, AI761580, AI885734, AW131854, AI028092, AW054930, AA843208, AI188410, AI457118, AW338608, AA574231, AA224194, AI221082, AI149382, AA918408, AW166459, AI332782, AI183618, H46974, AI359210, AI969702, AF151872, and AL110239.
HDIDL15	8832	851999	1 - 405	15 - 419	AW119198, AW268984, AW291411, AI699375, AI538081, AI880221, AI989588, AA936261, AA744022, AA744306, AA744319, and AA744343.
HDIDJ44	8833	587742	1 - 521	15 - 535	AI003653, H92228, AI370273, AA708248, AA018367, AA069415, H85653, H86634, and AA017687.
HDIDG39	8834	799870	1 - 403	15 - 417	
HDIDD88	8835	615173	1 - 426	15 - 440	AA496215, AA196044, U53093, AA496217, AA055124, AA055135, and AW387762.
HDIDD72	8836	587710	1 - 520	15 - 534	AI459473, AI065079, AI207423, AI064695, AI133218, AI133420, AI133314, AI061660, AI064797, AI888487, AI037870, AI037849, AI048429, AI884494, AI833147, AI717995, AI709394, AI832355, AI924211, AI720552, AI653760, AW007608, AI064831, C18852, AA669077, AI174665, AA468404, AI750150, AA533828, AI133004, AA659265, AA594949, AL037048, AA630170, AI912529, AI434498, AI459425, AA575977, AW275829, AA886596, AI215649, AW270021, AI124928, AA578589, AA548849, AI832732, AA098789, AI628930, AW004905, AI720986, AA630251, AI683207, AW149630, AA886490, AA595864, AI028073, AI880409, AW188463, AA075342, AI635477, AW168232, AI720912, AI133259, AA226261,



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HDTDD70	8837	757088	1 - 453	15 - 467	R07618.
HD'TDD67	8838	754739	1 - 458	15 - 472	AA358812, AA308023, and AA419289.
HID'TDD15	8839	668754	1 - 415	15 - 429	AI018089, AA488552, T30640, T71401, W31697, W19918, AA165100, R08686, H78637, N90337, T99588, Z41909, W25292, AA165080, R79674, R34212, N77082, N78438, AA150886, T82168, T85462, R77046, W56864, H95034, AA888217, R19848, AA314539, W25298, AW408479, AI114871, U83194, and AF121856.
HDTDC74	8840	799868	1 - 501	15 - 515	
HD'TDC64	8841	799871	1 - 424	15 - 438	
HD'TDC38	8842	706741	1 - 613	15 - 627	R00207, R08120, AI001417, and AF078749.
HDTDC30	8843	692063	1 - 276	15 - 290	H09128, AW276933, N51140, AA321595, AA975915, AI273675, AW183603, AI268564, AI138918, AA741020, AI371804, H20669, AA446782, AL041398, AI798242, AA720913, H30560, AA721582, AA828045, AA831638, AA774960, R95030, AA528688, AI610376, N47882,

					AA502568, F37052, AA507991, AW189401, AW192518, AA524846, AA745459, AA744068, AA548382, AA491424, AA056461, AA658179, AA652771, AA532512, AA372106, AA402269, AI357815, AI917891, R62497, H56521, AI494481, AI039451, AA354695, AI138252, AA402638, AA340911, AW072587, AI184354, AA128509, AA092704, H04195, AA362372, AL040324, AL118573, AI348611, H03398, AL045954, H03415, H87153, AA594061, AI085270, AA601460, AA088697, AA228381, AI760835, AA677939, Z94801, AL050332, AC006978, AC007349, AC004552, AC002378, AL133243, AC007221, AL031657, AF227510, AL031602, AC006965, AC007314, AC003043, AC004884, AL031650, AL050317, AL020995, AC007225, AL133163, AP000104, AC004383, AC005696, AL049569, AC002542, AL035458, AC004887, AL023804, AF064861, AC002302, AC002400, AC004857, AC002549, AC008078, AJ003147, AL049745, Z98036, AC006312, and AC004526.
HD/TDB37	8844	587699	1 - 719	15 - 733	AA018755, AI332451, R45788, and AA247911.
HD/TDB21	8845	587700	1 - 699	15 - 713	W57976, W58117, AA642370, and AC005332.
HD/TCC55	8846	934923	1 - 1574	15 - 1588	W37285, AI680188, AI691024, AA258999, AA088201, AW410652, AI694271, AI016276, N76343, AI278104, AA496721, AI765185, AI078368, N54377, AW206705, AA708774, AI193198, AA708517, AA689584, AI467892, AA745781, AA189110, AA843476, AA258177, H65702, AA707076, AW071574, AI092665, N49617, W37798, AI240773, H73843, AA188896, H65703, AW075591, H73169, N68588, AI683084, AA279200, AI224604, AA894491, N46923, and AC007253.
HD/TCC01	8847	916455	1 - 660	15 - 674	AI026818, AI144071, AI370045, AI311520, AI308578, AI334555, AI521589, AI952780, AA643261, AL080011, AA834534, AI862385, R81679, AA828045, AA360609, AA133293, AI671661, H90114, AL118912, T51942, AI560119, AA420729, T94072, AA809186, AI332671, AA535483, AW189804, AA721581, AW167202, AI679747, AL137705, AL110280, AC004883, AC004966, AL117337, AC004987, AL021393, AP000020, AC007390, AC002365, AL035420, AP000355, AC004686, AL137479, AC005086, AC004690, AL031732, AF113694, AD000813, AL022318, AF196779, AC005902, AC006561, Z77249, AL031984, AP000133, AP000211, AC007993, AP000504, AL035458, Z83820, AC006241, AC012085, AC005940, AF205588, AC005225, Z99297, AL022320, AC002314, AL031295, AC005920, AL033397, AC002563, AL121603, AC006059, Z83838, AL034400, AC005291, AC002477, AC007172, AC007308, AF109907, AL035461, AL008637, AC004383, U62317, AP000013, AC005520, AC004808, AC005091, AL035587, AL049795, AC005015, AL049872, AC002312, AL035407, U91323, AC000026, AC006112, AC005320, AL034417, AF179633, AL031230, AC007262, Z96074, AF042090, Z94721, X87344, AC003101, AP000344, AF196972, L78810, D84401, AL022316, AL022165, AL021155, Z49258, Y07848, Z92542, AC005924, AF095901, AC004560, AC005527, AB023053, AC002287, AP000556, AC002527, AP000250, AP000030, AC006236, AC004822, AC004841, AC016027, AC004513, U95739, AL021407, U80017, AC005911, AC020663, AL117339, AC005207, AC005488, AC004659, AL031281, AC005670, AL023284, AF129756,

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HDTBZ83	8848	842950	1 - 441	15 - 455	AI652677, AW374334, T08905, and AF196972.
HDTBV06	8849	935393	1 - 476	15 - 490	AI199248, and AC002076.
HDTBU73	8850	764410	1 - 707	15 - 721	R08992, and AA029661.
HDTBT35	8851	706730	1 - 786	15 - 800	N32495, N94866, AI239947, AA714897, AA400836, and AA639185.
HDTBS91	8852	789425	1 - 541	15 - 555	H20657.
HDTBS45	8853	591589	1 - 450	15 - 464	AA777234, AA705296, AI240824, AI982752, R07024, R07066, and AL110235.
HDTBR39	8854	705350	1 - 768	15 - 782	AA460387.
HDTBP84	8855	783024	1 - 488	15 - 502	AI767149, AA494182, AI927682, N74958, W05656, AA603309, AA747756, AI249573, AI433008, N49368, AA486131, AA349927, AI271126, AA661921, AI040342, H71429, AA279421, AL041619, AA490183, AL138455, AA838190, AI345157, AA584805, AI284640, AA618452, AW275510, AA984295, AA834707, AI270117, AL037683, AI694130, AW084466, AI963720, AA635739, AI580250, AI687343, AI700109, AW023865, AW069769, AI583283, AI953275, W45625, AW302903, H52274, AW102846, AI370074, AL045053, AI307608, AA634889, AI696962, AW088846, AA747070, AA584692, AA216412, AW264934, AL119713, AA101689, AW021735, AA179045, AL042420, AW024042, AI027459, AW169038, AI084294, AI821494, AA613397, AA613591, AI031973, AI950983, AI217937, AA493695, AW235497, AW072487, AA584167, AI393931, AI305766, AI744826, AI805363, AI217936, AW163293, AW168618, AL046205, AF034184, AI370094, AW021597, AI431303, R24887, T41247, AA601673, AL038705, AW263415, AA811710, AI799642, AW149156, AC004030, AC004626, AC005066, AL049766, AF091512, AL021707, AC006041, AC002067, AL109865, AL080250, U95742, AL121603, AC003691, AC004933, AC005914, D83989, AL031665, AP001172, AC003101, AC004979, AC007590, AC005541, U02531, X55925, AC000354, AP000228, AC003119, AP000140, AL078604, Z82210, AC006155, AL035410, AP000088, AC006459, A67988, U67231, AF135028, Z69666, AF061032, AC006537, AC004232, AL031300, AC005387, AC004204, AL035402, AL035462, AC004940, AC008168, AC003692, Z98046, AC004901, AL008728, AL023755, AL121591, AC002564, AL022322, AC005998, AL035608, Z78022, AL035659, AL049544, AC007043, AL022163, AP000365, AC004987, Z98753, AC004028, AC004130, Z86061, AF227510, AL034452, AC003075, AC005026, AC004638, AC005048, AC003683, AP000548, AL096861, AC003977, AC004592, Z94721, AC004861, AL049649, AC004069, AL031904, AC002430, AC004691, AC004690, AC006998, Z84469, AC006058, AL031311, AC008033, U91326, AC007214, AF042090, AC006512, AC005242, AC006213, AC002549, AC005220, AL023284, AC010202, AC007384, AL049834, AC010170, AC007514, AP000962, AL133445, AC006045, AL031123, AC005291, AC007298, AF001549, AC006288,

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HDTBM53	8856	727526	1 - 138	15 - 152	AC005666.
HDTBM31	8857	697918	1 - 514	15 - 528	AL668673, AL668675, N93503, N93496, and AI734225.
HDTBK62	8858	742603	1 - 208	15 - 222	AA568869, AA515334, AA661921, F12561, AA689526, AI580250, AW002350, AW149313, AI873990, AI524360, AI583283, AA468022, AI886432, AA468131, AA724333, AA580808, AW438643, AA468244, AI247199, AA483771, AW168618, AW196064, T89972, AA063173, AA526536, AA828749, AI824706, AL036037, AI919265, AA501762, AW274349, C04454, AA577959, AI284640, AW438853, AA857486, AI873852, AA482681, AA526758, AA665199, AW303196, AA491797, AA467820, AW264934, AA595499, AI431303, AA535406, AA309530, AA812281, AA644070, AI801482, AW301350, AW193265, AA490183, AA526779, AI350211, AL119691, AI636730, AA515905, AA847516, F29184, AL044858, AW408047, AI003751, AA526630, AI305766, AW270382, AA782304, AW023990, AL120933, AA113182, T51054, M86120, AA469451, AA679532, AL046409, AA579366, AL047427, AA618206, AA188664, AI345157, AI889388, F17891, AI613280, AA631507, AL048626, AA602047, AA502103, AI610435, W45625, AW407578, AA650208, AA584201, AL042853, AI358431, AI754658, AL119724, AI860013, AI869406, AI687343, AA847622, AA516226, AL118991, AW050734, AA225072, AI797903, AW074419, AA581903, AA828042, AI816141, AA569471, AA362511, AA503854, AW270258, AW328171, AW327868, AA629992, AA584805, AI281881, AL120269, AW103758, U57005, U18388, U57008, X54179, L47228, X55929, X55933, U18390, X75535, U67825, U18400, X55925, U18394, U18395, U57006, U18392, U18398, U57009, X55927, X74558, U18391, X55931, U67826, I51997, U57007, U18393, U18387, U57004, X55926, X55923, X54177, X54180, X54178, AF015148, X55922, D83989, X54181, X54175, X76666, AF015149,

					AL031985, X53550, U67830, AF015147, U04355, AF162270, AB012179, U67801, M37551, U67832, AF015153, U67217, U67222, U67211, AF015157, AC007934, AF015156, U67231, AF077058, U67233, U67230, AF015151, AL050097, Z79422, U67226, U02531, AL132712, U67229, X88791, AF088035, U71148, AL031681, AP000359, AL024508, AP001040, AP000088, AC004647, U02532, U67235, L78833, S83362, Z96074, AL121655, AJ246003, Y09781, U89335, AL110120, AL136295, U67228, U67227, S56773, AL031276, AL031255, AC007308, AC004920, AL110172, AC007385, AL121658, AL035652, AC009330, AC006265, AF012654, AC005071, A67988, AC004678, U67216, X14448, Z86090, AL109984, Y18000, Z82244, Z74739, AC001163, AC002563, AC002094, AC008012, AL132800, AC006270, Z99754, AC004882, AC003101, U43572, AL031283, AL133241, AL008719, AC005264, AL096765, AC005567, AC016830, AC007387, AC006515, AC006409, U38676, AC007774, AC007350, AP000103, AF069508, U91326, M96868, AC002564, AC005529, AC005102, AC005844, M37547, AL023553, AC004152, AF017257, AC005231, AC002375, D26163, AC007014, S83170, AR042836, AC000052, AC009247, AL034451, AC004002, AL096701, AC004652, AC004000, AC002316, AC016027, AC002126, AC004751, U38669, AL034417, U90546, AC004858, AL023807, AP000008, AL031588, AC005180, AC004671, AC006251, AC005785, AC004922, AL009181, AC005846, AC004099, AC005039, AC005933, AL133276, AL009031, AC008040, AC009510, U62317, AC004972, AC002430, AP000704, AC002326, Z82190, AC009542, AC004019, AC003664, AJ225085, AL135746, AC005781, AC003682, AC006432, Z49816, AC004673, M84472, AL035072, AP000555, Z83844, X98173, S43650, AL122023, AL121769, U78027, AC006002, AC007384, AC004149, AC004794, AC004777, AL031844, AC004216, AL049780, AP000300, AL021977, AC005081, AC005182, AC007055, AF199339, AF111167, AC005899, AL136504, AC005754, Z98050, X98172, Z83840, U66059, AP000249, U52112, AL023494, AC006252, U32576, AC005745, U91985, AC005908, AF001549, and AL031668.
HDTBG80	8859	916167	1 - 821	15 - 835	AA075174, AA780368, AA608609, AA116112, N23422, AA426183, AA919127, AI051104, AA778513, AA861163, AI263419, AA844710, AI308998, AI016753, AI146269, R89012, AA875826, AI334311, AA832331, T66141, AA890409, AA594107, H57164, W47366, W93467, AA447722, AI276282, T58760, AA805142, AI150612, AI660146, AI271554, AI306121, AI911815, AI223452, AA417020, N56558, AA553689, AA424729, F09765, AI193223, AA972680, AI707534, AA748812, AA860315, AA116113, AW136275, W47365, AA740503, AA447882, AP000223, AP000085, and AP000086.
HDTBD67	8860	899636	1 - 2233	15 - 2247	AW242597, AW069086, AI148152, AI125778, AI431242, Z99396, AW392670, AL044652, AA362688, AL134524, AA362689, T29199, AA362690, AW372827, AL119522, AI432646, AL119457, AL119324, AL119319, U46351, AL119401, AI431305, AL042551, AL119484, AL119391, AL043019, U46350, U46347, AL037205, AW384394, AW363220, AL119418, AL119497, AL119355, AL119363, U46349, AL119439, AL119443, AL134525, U46341, AL119444, AL119483, AL119341, AI142139, AL119396, AL134536, AL042544, U46346,

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HDTAU14	8861	658429	1 - 219	15 - 233	H91918, AL137201, and Z84572.
HDAT80	8862	911928	1 - 2399	15 - 2413	
HD1AP53	8863	728216	1 - 338	15 - 352	<p>           H48102, W39066, N57359, H53255, H63515, H70625, N54141, R96510, N57848, R97064, AI655338, AA745302, AA502532, AA808982, AA338193, D82544, T63054, AA373861, F08866, AA579188, AA356249, AA295039, AI270177, AA282951, AA525379, AA297698, AW419389, AA018517, AI917132, AA308598, AA975894, AA805018, AA715418, H86665, AA808847, AA568314, AA055987, AW243884, AA481887, AA180781, R96427, AI336026, T50251, AA808843, AA610433, R48980, AI918419, AA411590, AA909816, AI273148, AA678845, AA420691, AI742168, AA583579, Z97053, AC006011, AC007225, AP000555, AC005412, AL109758, AC006449, AL049569, AP000087, AC002425, AL024498, AL133448, AC005874, AF134471, AL117258, AL031291, AC007308, AC005753, AC006088, AC004408, AC000085, AL021920, AF196969, AC005399, AL109984, AC005071, AC004883, Z95152, AC010202, AC007066, AC007388, AC005330, AC002369, AL049694, M89651, AC005632, AC006130, AC008040, AC005048, AC002350, AC007637, AL009178, AL133163, AD000092, AL121769, AC002300, AC004805, AF172277, AP000694, AC005011, Z83844, Z83826, AC004933, AB023049, AC005696, AL021154, U80017, AC004996, AC002351, AL035072, AC008126, AC006001, AC008928, AC007917, AF001550, AC000353, AC005089, AC004841, AC005520, AC005726, AC005009, AC005828, AF165926, AF001548, AC002059, AC006160, AL109801, AL031003, AC004985, AP000700, AC005480, U85195, AF107045, Z97832, L78833, AL035417, AL022311, AL132712, Z84469, AB000882, AL031311, AC004019, AL022238, AL031666, AC006312, AB016897, U52111, AC004560, AL022343, AL035587, AC004923, AC004922, AL049795, AC007860, AC002040, AC004851, AE000658, AC004447, AC007565, AC005037, AL133245, Z84466, AL031848, AC004000, AL121825, AL136295, AC004967, AP000269,         </p>

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HDTAH15	8864	840327	1 - 703	15 - 717	AA151989, AA053806, AA877780, AI990954, AI761757, AI884981, AI359275, AA883559, AA029799, AI334302, AI927450, AI885711, AI401339, AI418850, AW089486, AI147258, AW007192, AW291421, AI423057, H92988, N21120, AA115357, AI400311, AA114858, AI052732, W78047, AA291538, AI458414, AI222211, AI568379, AI887327, AA526168, AA827153, AI127813, AI351870, AI400322, AI093742, AI148093, AI129777, AA479087, AA114856, AI082454, AA993306, AA419256, AA977759, AA885007, AI689072, AI085769, AA401889, AI225066, AA115236, AI359661, AI289273, AI582790, AI569549, H37803, AA193281, W81178, AA115458, AA293486, AA953381, AI084597, AW438966, AW300931, AA152074, H80087, AA115479, Z39506, AI423394, AI095106, AA916116, T79202, AA428124, AA479241, AA256520, AI571788, AA778279, AI474234, R94519, AA114855, AA634164, AA114857, W79466, AA593584, AA992871, AA031498, AI659464, AW339599, AI868579, AA614435, AW169783, T30237, AA035792, R06984, AA258598, H78840, T30871, H94218, R93668, AI873150, AA031544, AA258627, T79289, N31135, AI802277, AA302935, AA256627, AI015755, H37853, AA321801, AI828773, and AI953237.
HDTAE60	8865	810259	1 - 306	15 - 320	AA905241, R07845, AA484618, AA876674, AA927025, AA969580, AW015956, F27760, AI560279, AI077875, AA657632, AW274260, AI130748, AA531437, AA888258, AA926970, AI344732, AI039009, AI832645, T25895, AA664996, AI309287, AA244132, AA541603, AW363453, AW363455, AW373552, AW373548, AW363452, AI150756, F30920, AI289147, AI537640, W80487, AA780729, AA603795, AA864997, AA524049, AI023676, AA947143, F20520, AI911004, AI000638, AI283651, AA704855, C04467, AA694524, F22719, AA534561, AA694164, AA627396, F27644, D59538, AA318284, F33783, F33364, AI686496, F27676, AA903996, AA244131, F35313, AW373558, T74772, F33405, D51606, AW363451, AA730436, AI749712, AW363456, F30071, AI708982, F24555, N80149, F27522, R98804, AA317435,

						F30100, F34894, F22313, F35771, F33982, AW373549, AA096277, AA327732, AC008044, and AC008372.
HDTAE44	8866	799902	1 - 397	15 - 411		F07105, and AL080219.
HDTAE29	8867	780991	1 - 435	15 - 449		AA292713, AW170280, AI091066, AA112320, AA740290, AA469117, H07025, and AA632483.
HDTAE16	8868	661997	1 - 425	15 - 439		
HDTAE09	8869	799874	1 - 404	15 - 418		AI564468.
HDTAB89	8870	786039	1 - 383	15 - 397		T78925.
HDTAA31	8871	937609	1 - 1420	15 - 1434		AI219793, AA629254, AW104724, AI567846, AI590227, AI439717, AI568855, AW148320, AW151485, AL036361, AI538716, AI702068, AI828731, AI445025, AI538829, AI536638, AI637584, AW132056, AI890833, AI926790, AI432969, AI564719, AI811344, AI619502, AI802542, AW026882, AI538259, AL079963, AW103371, AI433157, AI702073, AI866801, AW262565, AI815855, AW198090, AI269862, AI269205, AI801766, AI634737, AL047763, AI249257, AI624206, AL038605, AI921248, AI696612, AI274508, AW149869, AL043981, AI871697, AI627360, AI491852, AI889376, AL043326, AI682841, AI524671, AW008048, AW087445, AI349004, AI249323, AI274541, AW268220, AI439745, AI499393, AI872711, AW301505, AI480118, AL040243, AI287489, AW085799, AI783504, AI620284, AI612913, AI559296, AI569583, AA470491, AI254731, AI677796, AL036396, AW301409, AI500523, AI580984, AI431327, AI521012, AI284484, AI625079, AI590128, AW071349, AI800453, AW071417, AI570909, AI440239, AI537303, AW087207, AL036146, AI635461, AL045266, AI648509, AW403717, AL036403, AI610756, AI435661, AI445432, AI571909, AI308032, AI922901, AI284131, AI340582, AI702406, AA225339, AI591316, AL045500, AW118398, AW274192, AI269696, AI819326, AI560099, AI446628, AI633419, AI289937, AW086113, AL036802, AI687728, AW090013, AI815232, AI758437, AI539780, AI567128, AI500706, AI250293, AW148363, AI224992, AI799199, AI554427, AA508692, AI818683, AI801544, AI499463, AI590999, AI952360, AI636445, AI273048, AW118512, AW131954, AW149851, AI539771, AW196141, AI612920, AI567351, AI554484, AI868831, AI912866, AI571551, AI690312, AI270707, AI275175, AI281837, AW238730, AI281779, AI570384, AI349772, AI857296, AI537677, AW002342, AI590120, AI475451, AI569616, AI571861, AI433976, AI702433, AI572787, AI273142, AI282281, AW082040, AI609593, AI673710, AW075351, AI925156, AI886753, AI612759, AI281762, AI869367, AI784252, AI349933, AI800433, AL121463, AW075413, AW166903, AW075667, AI500077, AW051258, AI349645, AL038565, AI624084, AI498579, AI445165, AA427700, AI866002, AW148408, AW166583, AW268251, AW080327, AW169653, AI648684, AI634345, AI610645, AI491897, AI038779, AW074993, AI349614, AI690480, AI521040, AI866608, AI343112, AI580190, AI920968, AW169132, AW195968, AI348897, AI862144, AW268253, AI567612, AI349598, AA835801, AI925196, AI097410, AI312152, AI687127, AI636719, AI539153, AL036265, AI345735, AI312428, AI431975, AI630928, AI687362, AW075084, AL134259, AI950664, AI349937, AW073270,



					AW089572, AI271786, AW129659, AI610690, AI307708, AL043293, AI500659, AI921379, AL044207, AI753683, AF090901, I89947, I48979, AF090934, A08913, I89931, A08916, S78214, Y11254, AL050116, X82434, AF113013, AL133557, I48978, AF090903, AF113690, AF106862, AL133016, AF078844, AL050393, AF104032, AF113689, AF111851, E03348, AL137459, AL122093, AF113699, AF113019, AF113694, AL117394, AF113677, AL137557, Y11587, AR059958, AL110221, AL117457, S68736, AL117460, AL050149, AL133093, AL133080, AL133640, X84990, AF091084, AF113691, AL110196, AJ000937, AL049314, AL080124, AL137527, AL12121, AL133075, AF125948, AL133565, U42766, AL122050, AL080060, AL050108, AL050277, A93016, AL049452, AF090900, AF090943, AB019565, AF158248, L31396, AL096744, L31397, AF118064, AF118070, AL049466, AJ242859, AF017152, AF125949, AF113676, AL050146, AL080137, AL133606, X63574, Y16645, E07361, AF090896, AF146568, AL133560, AL050138, AF079765, AL049938, AL122123, A65341, I49625, AL110225, AR011880, AF177401, AL137550, AL137283, U91329, E02349, AJ238278, A08910, AF017437, AL117583, A08912, E07108, X70685, AL049464, AL049300, AF097996, AL049382, Z82022, AL117585, U00763, AL049430, A08909, AL137271, AL137538, AF067728, A77033, A77035, A58524, A58523, AF118094, AL117435, U35846, AL133113, AF183393, AL122098, AL137463, X65873, AL050024, I33392, AL137648, AF087943, AL122110, X72889, I03321, U80742, U72620, AL049283, A12297, A03736, X96540, AL080159, AL137476, X93495, AL080127, U67958, I09360, X98834, AR000496, U39656, AF061943, AL110197, S61953, AF111112, AL133568, AL133072, AJ012755, AF095901, AL137523, I42402, AL137521, Y09972, I66342, A93350, E08263, E08264, AC006336, E15569, AF026124, Z37987, A08911, I00734, E00617, E00717, E00778, AL137560, I26207, AF119337, AC004093, Y14314, I17767, AF153205, AF026816, AR038969, AL133077, AL050172, AF185576, AL133104, AR013797, AL137429, AF003737, AL117440, AL110280, AL137526, Z72491, M30514, AJ006417, AL122049, AC004690, AL133014, AF106827, AF057300, AF057299, AF162270, AR038854, AL133067, AL137556, AL122111, AF079763, A07647, AF000145, AL117432, AL137533, U58996, AC004200, U96683, X83508, AF100931, E05822, L30117, AL080074, AC010072, AL137539, AF061573, E02221, AL137480, A45787, AF008439, E04233, U68387, E06743, AF118090, AF067790, AL133098, AF111849, Y07905, AF081197, AF210052, AL137478, U49908, X62580, AL122118, X87582, AC006371, AL080158, E08631, and AF100781.
HDRAC08	8872	963325	1 - 436	15 - 450	AL040453, AA111930, AW245617, AI066425, AI281116, W73912, W73913, AI887964, AA707826, AA983585, AA147338, AI279720, AI285091, AI796028, AW016807, AW207093, AW301179, AI825596, AI910479, AI376001, AI160598, AI208192, AI033830, AW137387, AA975620, AI760601, H59137, AW242126, H24343, AA551994, AI767833, AA988692, R20517, R44410, N64714, AW198035, D82491, AA857846, D20263, AW339377, W19642, F13806, D82398, AA147361, AW176269, AI828332, AI758798, and W04598.
HDQPR06	8873	936658	1 - 815	15 - 829	A W276983, AW206541, AA418882, AI298636, AA290805, AA127225, AW368344, AI762472,

HDQPP57	8874	926953	1 - 711			T73087, AL119313, AI335529, AA774869, AI291928, AI338925, AF112221, and AB020678.
HDQII08	8875	958252	1 - 456		15 - 725	H80171, AA971126, and T80926.
HDQHU84	8876	782202	1 - 431		15 - 470	AA010427.
					15 - 445	AW135842, AI185102, AI521545, N71336, AI374790, AI093509, H47630, AA380199, AI870424, AI935765, AA973252, AI538850, AI249946, AI090661, AI679550, AA514684, AW167422, AI687482, AW026905, AI933992, AI432570, AI684164, AI370322, AI440444, AI591407, AI250627, AW075921, AI817543, AI610318, AA243996, AW366372, AI963191, AI954721, AI242931, AI356929, AI270039, AI890391, AI570264, AW152415, AI089970, AI921746, AI679214, AI570857, AW089932, AI491904, AI624693, AI803740, AI682121, AI539800, AW265004, AW166612, AW090102, AI446785, AI811912, AI830187, AW105665, AW167215, AW192461, AI439903, AI918370, AL046942, AI365256, AI687568, AW236186, AI922996, AI309589, AI685822, AI630947, AI829893, AI952306, AW131994, AI783569, AW020480, AI689614, AW170773, AW168503, AW163464, AI758988, AW008085, AI680498, AI653402, AI540179, AI470293, AW082532, AI569616, AW169234, AI582900, AW104117, AI539687, AW088438, AL117635, S78453, AL133557, AF159615, I80062, S61953, I66342, AL137547, AL137298, U89906, AB007812, AB025103, AF114784, AL137471, AI003118, AF182215, AL117648, X89102, AF194030, X59414, X84990, AL133559, AF109683, AL133113, E08517, E15582, A21103, AF131773, Y08864, AF081197, AF081195, L10353, S77771, AL080159, AF192557, AL133062, AF061981, AF207750, A08915, AI8777, AR029580, U70981, I22020, AL137294, E01963, AF114170, AL133084, U75378, AL137268, AB028451, AF106945, AF000145, AF028823, AF065135, AF132676, AF200416, AF061836, AL117443, X62773, AR038969, AL080148, AF000083, S78214, AL137539, and N71386.
HDQHO94	8877	793387	1 - 114		15 - 128	AA211827, and AA256750.
HDQHJ04	8878	926978	1 - 630		15 - 644	AA592982, R17976, AI014353, AA584604, AI982975, and AW206259.
HDQGW10	8879	963512	1 - 464		15 - 478	AW207166, R62452, AA570462, AW131259, U95742, and AC007216.
HDQGF78	8880	772952	1 - 546		15 - 560	R83407, and AC003086.
HDQFT10	8881	852587	1 - 685		15 - 699	AA864468, AI733017, and AI791415.
HDQFJ39	8882	852593	1 - 805		15 - 819	AA765774.
HDQFE93	8883	791724	1 - 1181		15 - 1195	T75255, H82395, R21558, H15880, F12818, Z42224, R13241, and F12817.
HDQEX85	8884	875473	1 - 495		15 - 509	AA002220, H63472, AA307783, AA478844, AI676034, AW364878, AI174745, AI682476, C04105, AA481986, U47346, R10969, I49897, and AL096740.
HDQEW83	8885	780551	1 - 582		15 - 596	AA128013, AA128008, AA128056, and AA128032.
HDQEW11	8886	966126	1 - 316		15 - 330	AA525048.
HDQET29	8887	852618	1 - 459		15 - 473	T70748, AA584765, H86388, AI801563, AW167773, AA662629, AA572718, F27846, AL031427, Z97630, AL050318, AC007308, AL035423, AL109628, AC006121, D79206, AF053356, AC005255, AC006064, AC005592, AC005102, AJ239325, AC005971, AL035443, AL132777,

HDQEQ10	8888	963533	I - 618	15 - 632	<p>AC004228, AL022316, AL121595, AL021391, AL021578, AC005361, AL096817, AC001052, AC007899, AL008582, AC005844, AL031670, Z81002, AP000688, AP001052, AC005377, AC005527, AL031295, AC007546, AC006312, AL049761, AL078602, AP000504, AC012627, AC005516, AL034553, AL022313, AF111169, AC006985, AC004985, AC002347, AC005529, AF129756, AC005412, AC002470, AC003109, AC004254, AC006453, Z99716, Z83822, AC004253, and AC005610.</p> <p>AA558617, AA825712, AA806536, AI537533, AI336120, AA506386, AA721171, AA559219, AI754064, AI754257, AL041375, AI086603, AW148507, AW069227, AI933714, R22196, D29248, AI623764, AI283329, AA233462, AA113757, AA584125, AA714110, N95424, H66812, AA127426, AA669155, AW245331, AW272606, AI300597, AI524360, AL037910, N23896, H29019, AI065031, AI738741, AI417496, AA347232, AI904840, AA608729, AC007151, AC004587, U37450, AC004797, AL021392, Z84488, AC004883, AJ009632, AJ006997, AC004955, AP000694, AC003962, AC005899, AC006441, AC004743, AL021155, Z95116, AL049570, AP000359, AC007227, AC005776, AC000159, AC005399, AC006511, AC006285, AC004887, AC006084, AC003109, AC005589, AC007637, AL035694, AC004821, AL031289, AC007226, AC004820, AC002316, AC005519, AC007263, AC005520, AL133448, AF053356, AC006948, AP001065, AC004799, AP000116, AL035450, AC000007, AC005781, AC002091, AC006111, AL049795, AC006538, AC004382, AC005081, AC004383, AC008055, AL031005, AL139054, AL031228, AL050321, AC002558, AC004583, AP000553, AC004225, AC009516, AL049538, AP000348, AC006101, AC003071, AL031584, AC002546, AL031282, AC020663, AC005225, AC005971, AC008126, AL035249, AC005164, AP000049, AC004031, AC006449, AC007688, AC007566, Y07755, AL031283, AC005940, AC004526, Z93244, AP000311, AC002429, AC005529, AL031293, U78027, AC007376, AC005280, Z86090, AC005800, AP000689, AC004148, AC004973, AF001548, AL121653, AC004019, AC007386, AL035422, AF064857, AC006014, AL121658, AL034553, AC005828, AC007055, AC004771, AL132641, AJ003147, AC003108, AC006077, AC004895, AC006241, AL049552, AC005288, AC006271, AC004703, U85195, AL078583, Z93023, AF111168, AC005082, AC005512, AC002477, AC005859, AC005484, AC005754, AC007066, AL049576, AC002310, AL031311, AC007040, AC002398, AE000658, AL031427, Z81450, AL035458, AL050348, AL031058, AC005202, AL035555, AC004884, AC005521, AC004834, AC004927, AB022537, AL008710, AC006130, AC007563, AC005548, AL117354, AC005317, AC006581, AL034417, AC004686, AC005527, AC003663, AL031277, AL109952, AC005011, S67859, U80459, AC002126, AL022476, Z95152, AL109628, AC009247, AC001226, AL022329, AL049569, AC006536, AF030453, AC007536, AC004755, AL031280, AC005345, AC007868, AL035400, AC002369, AL031053, AC005667, AL031276, AL009031, AC002994, AP000502, AC002326, AL118510, AP000117, Z98036, AF134726, AC005088, AL135960, AJ131016, AC006486, U91323, AL035409, AL022322, AL049643, AC005486, AC002036, AC003042, AL022313, AC008115, AL133353, Z98946,</p>
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HDQJ46	8889	957666	1 - 411	15 - 425	AL035420, AC007030, Z95114, AL023575, AC004835, U73169, AC007707, AL022316, and AC002096. AW015127, AA767375, AA282147, AI431780, AL120806, AI581323, AI291483, AI050841, AA968963, AI949457, AI309633, AI434775, AI766201, AI130608, AI359445, AI278918, AI445485, AA629098, AA262437, N72677, N21390, H96796, AW118308, AI770085, AI797434, N72690, N50924, W81605, AI371344, AA287019, W31464, R12476, AA694478, T99090, AW273672, H72374, D21015, AW059628, and AC003999. AI820722, AI820696, AI732275, AI732300, AI478997, R50557, R48764, and R48866. N41950, and N33234. AI078356, and AA889808. W05421. AI860951, AI339309, AI417802, AI126514, AI275133, AW138502, AA738256, AA732499, AI016178, AA157007, AI203233, and AJ006266. AI285860, and AA595438. AW002414, AA587218, AI337851, AW341392, AA016317, AW043859, AW148813, AI968429, AI370931, AI186481, and AI796475. AA259064, AA657952, AI143075, AA594872, AI087206, AI149739, AI244822, AA725667, AA056110, AI093167, AI050824, AW024987, AI493689, AI200955, AA454906, AA400067, AA649907, AA436620, AI141148, N31844, AA132154, AA419249, AA402818, AA573258, AI074184, T61071, AA994420, AI339724, AI094655, D80744, AI160520, AA210767, AI885410, AA652366, H19641, AI365036, AI884689, AA733140, AI621277, D80807, AA018419, AA631598, H41099, AA626841, AA579798, AA861445, AI150344, W58172, AA812861, AA041404, H20476, AI339583, AA954727, AA324170, AI372711, AI817408, AA948293, AA507208, D80745, AA400850, AA320028, AA534640, AA534821, N72499, AI380715, AA779645, AA830821, AW023338, AW022102, N67350, AI334895, AI560683, AW020693, AI312210, AW269097, AI336513, AI348895, AI336495, AI335426, AI348777, AI500514, AI310930, AI888621, AL037454, AL048644, H41759, AA572758, AI310940, AW104056, AI340603, AI288285, AI538764, N22276, AA420722, AW162189, AW020095, AW021717, AI538855, AL040586, AL048323, AW022682, AI559752, AL048340, AW071417, AL047422, AI348854, AI567582, AA291456, AL036832, AL039086, AL038564, AI690536, AI307557, AI336633, AI554343, AI345567, AW058233, AI312353, AI887775, AW020710, AA421957, AW071362, AL036274, AW084056, AI349256, AI344935, AI312152, AI307494, AI310575, AW268072, AI335363, AW403717, AW075084, AI340627, AI310925, AI538850, AI312399, AI349937, AL045620, AI334884, AI307543, AI340533, AI348897, AI345251, AW071412, AI345143, AI689420, AI307708, AI345666, AI312325, AW071395, AI648567, AI340659, AW071377, AI311159, AI340511, AW059828, AI340644, AI345397, AL036705, AI334930, AI309443, AI307520, AI345688, AI349186, AW084097, AI340664, AI310592, AI307542,
HDQEF93	8890	791753	1 - 464	15 - 478	
HDQDX89	8891	786323	1 - 977	15 - 991	
HDQDT10	8892	963482	1 - 593	15 - 607	
HDQDG73	8893	761957	1 - 586	15 - 600	
HDQDC74	8894	764985	1 - 323	15 - 337	
HDPYO08	8895	958454	1 - 520	15 - 534	
HDPXZ28	8896	686188	1 - 670	15 - 684	
HDPXW88	8897	631353	1 - 344	15 - 358	

AI309391, AI345745, AI345739, AI345674, AA470491, AI312143, AI349637, AI344843, AI334920, AL040694, AI310927, AW020419, AL038605, AL047344, AI307578, AI349955, AW075093, AI349960, AI312432, AI312357, AI961589, AI921254, AL041150, AI312993, AI890507, AL037649, AW161579, AI312237, H89138, AL046463, AI377163, AI349622, AI636619, AW162194, AI349213, AA580663, AI114703, AW020397, AA042949, AI345347, AL119836, AI866465, AL039276, AI312428, AA493647, AA464646, AI702065, AI242248, AI267162, AI340519, AA468418, AI345415, AW238688, AI923989, AI254226, AL134999, AI433157, AI348917, AI345396, AI955945, AI473536, AI702073, AW131999, AI866770, AW152550, AL046618, AI690748, AA579232, AI567953, AI612750, AI799195, AA635382, AI855989, AL040011, AI446495, AI349276, AI540674, AI815232, AL080163, AL080234, AF058921, AL050024, AL117583, A08916, A08910, I89947, A08909, A08907, I48978, A08908, A08913, A08912, S76508, AF094480, AL133016, AL023657, AL137556, I89931, AF079763, X53587, AR038854, I49625, AJ010277, AL137658, AF090934, AF028823, A18777, AL050092, A03736, I89934, AL080074, AF090943, AL137560, AF118090, AF158248, AR059958, AL117416, AF114818, AL050116, AF113013, S77771, X79812, M86826, E01314, A23630, AL133010, AL049300, AF111851, AL137550, AL110224, AL050138, AL137548, U49908, AL122110, AF113690, AF114170, AL049382, U58996, AL110296, AL117649, AF026124, A07647, AL117457, L04504, X63574, S78214, AL133560, E01573, E02319, AL080060, AF100931, AF126247, AF097996, AR000496, U39656, AF069506, X72387, U53505, I03321, AF113676, AL137558, AF008439, AL133113, Y07905, U42766, Y11254, AL049430, X52128, Z37987, S69510, AL080126, AL117435, AL137641, U35846, I89944, AB016226, AF113677, L19437, S36676, AF067728, AF153205, AF000301, X96540, AF078844, Z72491, AL080158, X92070, AL133606, AL049465, AR011880, Y10080, S63521, AF051325, X70685, AL137271, AF200464, E15324, U68233, I92592, AL137529, AF090903, AL080140, AL117440, AL137656, AF016271, AL080137, U78525, AL133080, AF061573, D83032, U88966, AL137537, AL137276, AF169154, AL080086, AR020905, E04233, AF176651, AL137459, AL049452, U68387, AL050108, E15569, U51587, A58524, I48979, A58523, A15345, AL080124, A08911, AL133067, X87582, AL049347, AJ238278, AF017790, AL110158, AF090900, S68736, X57961, AF090896, AF137367, AL110222, AL137476, AL049464, AF113694, AL133558, AJ242859, J05032, AL080127, AF061795, E08631, AF151685, AL110225, AL133568, AL117394, AL050155, AL050393, X93495, X65873, AJ012755, AF113691, A08915, AF026816, X81464, AR068751, X63410, S75997, AF091084, AF017437, X06146, Y16645, AF118094, AJ000937, AL122050, I33392, X80340, AR029490, AL080154, AF111849, AL117460, I17544, E06743, AB007812, AF090886, AL133075, M27260, A90832, U66274, AF125948, AF177401, AL122093, AF106657, AL096751, E01614, E13364, AL137521, AL137292, AF057300, AF057299, AL137479, AL110280, AF061943, AL110218, I68732, AF162270, X72889, I29004, E12747, AL137539, I80064, AL110171, AL117648, AR013797, AL050277, AL137283, AL137526, AF118064,				
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HDPXO03	8898	923602	1 - 624	15 - 638	H52273, AW368490, and T64894.
HDPXN01	8899	915919	1 - 461	15 - 475	AI651231, AW196757, AA101088, W94251, AI627422, W94274, AA912880, AI093809, AI867562, H06521, and H20526.
HDPXL71	8900	760140	1 - 263	15 - 277	H84068, and AA054207.
HDPXD40	8901	974493	1 - 554	15 - 568	
HDPXD08	8902	958826	1 - 460	15 - 474	AA651853.
HDPXC56	8903	974490	1 - 550	15 - 564	
HDPXB75	8904	786320	1 - 451	15 - 465	
HDPWX53	8905	727595	1 - 428	15 - 442	T97918, and N77405.
HDPWT92	8906	791223	1 - 650	15 - 664	N76855.
HDPWR03	8907	923608	1 - 483	15 - 497	AA838727, AI816786, AI935020, AI801846, AI928063, AR014046, AR014055, and AR014063.
HDPWN56	8908	733129	1 - 412	15 - 426	AI761763, and R62488.
HDPWK75	8909	793234	1 - 448	15 - 462	AL037151, AW160378, AW163731, R62281, AL037901, T06249, AA211768, AI381026, AA206573, T30286, AW162002, AW390277, T30284, AA075932, AF061940, AF061939, AF061938, AF061941, and AJ132258.
HDPWH75	8910	956201	1 - 479	15 - 493	H79853, W03687, AA465485, AA455724, H83356, W87865, H59791, R16967, T79085, R09412, and R83716.
HDPVC01	8911	915816	1 - 594	15 - 608	AI038628.
HDPW82	8912	921279	1 - 299	15 - 313	R40075, R51621, AI141535, R46566, R37155, AI492408, AA970417, AA419023, H99298, AI669153, AA907293, AA811138, AA788986, AI825009, AI579905, H17653, R93326, R16181, AW070719, AA130206, AA745834, AI338136, AA365593, AA365604, R88755, AI824699, AI914066, AA448251, Z39123, R34299, AI808827, AP000298, AF039907, AP000044, and AP000112.
HDPUV65	8913	747646	1 - 831	15 - 845	R56626, AA928427, AW005035, AW364625, R68718, AW364618, AI318289, and AI494313.
HDPUV11	8914	966558	1 - 632	15 - 646	H08311, H29675, N99517, R11982, T80994, AA773218, AA569178, AL022345, AL049760, AC005011, AC008124, AC007857, AL080243, AC005295, U91323, AC005086, AC005067, AC002565, AL035458, AC011504, AC005800, AL031685, and AF047825.
HDPUR51	8915	914406	1 - 250	15 - 264	AW069477, AI471968, AW249664, AW245944, AA720616, AI825610, AA931555, AA988285, AI076790, AW009565, AI217146, AI217151, AI934470, AI61265, AW194915, AI675557, AA883665, AA149768, AW027197, AA011403, AA975558, AI219393, AW173189, AA436569, AI150988, AI421887, AA669290, R45925, AI784385, Z21905, T69866, AW138299, AI560662, and AF093415.
HDPUN39	8916	957580	1 - 1806	15 - 1820	AA703945, AI378007, AI887376, AI819938, AW118802, AW117265, AI023239, AA858163, AA836225, AA815054, N32787, AI304385, AI859862, AI810059, AA948491, AI393415,

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HDPU144	8917	715971	1 - 707	15 - 721	AA203502, R93355, AI022629, AI627435, T85234, and T97519.
HDPT065	8918	747206	1 - 554	15 - 568	AA136168.
HDPTL59	8919	739068	1 - 374	15 - 388	T68902, and T68823.
HDPTL43	8920	715038	1 - 608	15 - 622	T57728.
HDPTD58	8921	735750	1 - 550	15 - 564	H71387.
HDPSW93	8922	973098	1 - 486	15 - 500	AW162288, F13749, AI751162, AI696793, AW162489, AW270270, AI431434, AI537538, AI148277, AI859946, AI287651, AA601680, AA179706, AI268812, AA747375, C15897, AI266576, AA644320, AA708678, AA610491, AI500552, AI151261, AL120687, AA111870, AA127353, AW083934, AI305766, AI469796, AW062724, AI453233, AA284184, AI446638, AA604514, AW270258, T47739, AA657835, AI355246, AI291317, AA077776, AA135761, AI279165, AW194267, AI367361, H79308, AA578853, AA176605, AI243789, AW157005, T06828, AW193493, AA302980, AW192065, AA992126, AI445474, AI192631, AA814510, AL135643, AI028510, AL048616, AA226584, AI382614, T40612, AI696962, AW021583, AA297496, AA720732, AW069227, C14121, AA121919, AA484892, AI360514, AI568683, AI291124, AA071393, AI053786, AI358812, AI031670, AC002314, AC007055, AC005829, AP000248, Z98051, AF196969, AF129756, AP000504, U96629, AL080243, AC004453, AF114156, AC005484, AC004231, AP000556, AC002492, AC009946, Z99716, AC007546, AC002301, AC002544, AC007225, AL078477, AC005332, AL035072, AC006057, AC005668, U73634, AL080242, AC004655, Z93241, AC008372, AC005527, AF111168, AC005624, AL049795, AL096678, AC005940, U91326, AC007688, AC007376, AC004526, AP000505, AC004475, AC007536, AF134726, AC003041, AL121658, AC002400, Z98941, AC002300, AC006064, AL022237, AC004253, AC005377, AJ003147, AL035684, AC005529, AC004970, U47924, AC006312, AC004913, AC002351, AC007444, AP000160, AC018633, AC004874, AC005800, AC005755, AC004448, AF196779, AF047825, AC000026, AL031782, AC005696, Z82243, AL049636, AF053356, AL050308, AC006965, AC003037, AC009509, AC004125, AC005209, AC003821, AC005284, AL049766, AC006511, AC002059, AP000692, AC007298, AC007050, AC000025, Z85986, Z95116, AC004531, Z98744, AL078476, AL022329, AC006449, U62293, AC002470, AC005971, AC016831, Z82206, AC005740, AC004890, AC005237, AC002369, AC004617, AB000882, AL049776, AC003101, AC005288, AC004832, AC006441, AC004400, AC004381, AC012627, AC006468, AL031447, AL031283, AC006111, AC009516, U62317, AL022336, AC002045, Z98304, AC005182, AC004841, AC002996, AC007207, AL022476, AC007367, AC004796, AF104455, AP000359, AP000117, AC006277, AP000087,

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HDPSW82	8923	779614	1 - 664	15 - 678	W90767, AI125397, AI125743, AA912111, and W90700.
HDPSL71	8924	969286	1 - 416	15 - 430	AI201084, AI432483, AI469036, AI933748, AA927480, AA921974, AI653945, AA514329, AI952978, AI282809, AW451209, AW025649, and AW242494.
HDPSK64	8925	746370	1 - 636	15 - 650	AA001236, and AL137442.
HDPSK53	8926	727586	1 - 462	15 - 476	AA078886, AA078885, AL041732, and AB014514.
HDPSJ13	8927	656729	1 - 401	15 - 415	H60868.
HDPSB10	8928	961309	1 - 432	15 - 446	AI290094.
HDPSA86	8929	785293	1 - 440	15 - 454	AA495949, AI963348, R37246, AI394099, Z40416, N62063, H06877, AA425013, AI625778, AA883232, AW183998, C00885, AW418807, T63598, and AA488249.
HDPRW01	8930	915993	1 - 511	15 - 525	AI090161, AW369155, AW369104, AW377799, AW369248, and AL078593.
HDPRS89	8931	887682	1 - 464	15 - 478	
HDPRR24	8932	914667	1 - 398	15 - 412	AW246183, W19148, AW105250, H81510, W23551, AI199034, H30332, R58152, AA293565, H51005, AA017325, R70532, W25288, AA378659, AA431053, N35769, AA303188, AA121246, AA354142, AA668370, AF086837, and AF086838.
HDPRK07	8933	948672	1 - 380	15 - 394	AA765539, AA927315, and AL031133.
HDPRJ04	8934	909040	1 - 597	15 - 611	AL135709, AA417107, and AL096677.
HDPRE41	8935	712124	1 - 505	15 - 519	R76879, and R98903.
HDPPRA51	8936	725103	1 - 317	15 - 331	
HDPPV82	8937	779421	1 - 473	15 - 487	H80898, AL037040, Z93023, AC004752, AC004216, AL117339, AL096702, AC004682, AC002073, AL031427, AL022318, and AC005363.
HDPPQR07	8938	952337	1 - 618	15 - 632	AA909187.
HDPPQ168	8939	955006	1 - 632	15 - 646	AI052000, AW043554, AI589322, AI219714, AI921817, AI940690, AA854748, and AA860747.



HDPQH06	8940	934616	1 - 431	15 - 445	AI652814, and AI122123.
HDPQF03	8941	923120	1 - 810	15 - 824	AI582755, R26237, R86322, AI042965, AI134518, AI119319, AI119335, AI039912, U46351, U46349, AB021861, AF100318, A81671, AB026436, and AR043113.
HDPQC63	8942	744461	1 - 427	15 - 441	H79008.
HDPQA64	8943	872237	1 - 347	15 - 361	AA135852.
HDPPP29	8944	690497	1 - 381	15 - 395	AA430072, AI433439, AA534674, AC004190, AP000516, and AB014087.
HDPPIB17	8945	662917	1 - 374	15 - 388	N28339, and Z75746.
HDPOX03	8946	923856	1 - 579	15 - 593	AI056982, and AW062324.
HDPOI78	8947	773487	1 - 905	15 - 919	AI912571, AI911514, AI679788, N24178, AI313135, N78597, AW083974, Z30045, H92801, AI361253, D52266, H92790, AA639165, D61220, AI341193, AA565721, T23468, D60865, AI357528, D59892, AI702867, AI928304, and W07344.
HDPOP03	8948	923843	1 - 579	15 - 593	N49161, and U61375.
HDPOC02	8949	919597	1 - 618	15 - 632	AA122267, AA995018, AI677847, H06642, R16329, AI919166, AI611049, and AW235290.
HDPNJ73	8950	764407	1 - 593	15 - 607	T56742, AA551532, AA169830, AI022336, AC006014, AC005488, AP000356, AC004765, AC004841, AC004770, AC004228, AI031670, AC005697, AI035455, AI031280, AI109865, AI031311, AC009509, AC005837, AI021878, AC004882, AC005484, AC005529, AC004974, and AC002407.
HDPND09	8951	607575	1 - 555	15 - 569	AA587005, F29968, AA525753, AI783911, AW261871, AI954464, AI476460, AA513484, AA584756, U78027, AI121603, AI035422, AC002350, Z95329, AC005046, AC006511, AL008582, AC006468, AI031431, AF117829, AP000111, AP000043, AI035587, AC005800, AC002126, AC004647, Z84480, AF088219, AI049780, AC007308, AC005793, AC009247, AI035415, AC007536, AI049776, AF001549, AI049766, AC020663, AC007225, AC002477, AI031774, AF030876, AC004890, AC005480, AF196779, AC002312, AC007676, AI117339, AC007055, AF001552, AC004525, AC005821, AI035681, AP000359, AC003070, AP000509, AC007388, U91326, AC007151, AC005899, AI022313, AI034423, AI050318, L78810, AC005399, U91323, AF207550, AI024508, Z93241, Z98742, AI121653, AI031681, AI135744, AI009181, AI133245, AC005288, AF196971, AI132712, U52112, AC009516, AC005284, AI024498, AI049760, AI080243, AC005690, and AC005037.
HDPNC22	8952	674539	1 - 881	15 - 895	W90578, W90539, T86410, AI709138, AA890473, T79032, T86498, T85302, T79033, AI784127, T85514, and AB033024.
HDPNV35	8953	706647	1 - 386	15 - 400	W20066.
HDPMR81	8954	493958	1 - 452	15 - 466	AI700071, and AI651878.
HDPMH51	8955	725029	1 - 762	15 - 776	H75594, H84078, H86134, and H84972.
HDPMG46	8956	934144	1 - 346	15 - 360	AI073504, AA931246, AI420858, AA156986, AA806750, AI202536, AI796966, AI440318, AI299156, AI659218, AI147939, AI499692, AI088683, AI048596, AI337583, AI363844, N22539, AI470606, C06326, AW148877, AA253327, AI984272, AI052500, AI984788, H14210, AA284014,

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HDPLV29	8957	849526	1 - 567	15 - 581	AA236014, AA236084, AA330056, AF149770, and AC004801.
HDPLU84	8958	782061	1 - 597	15 - 611	R06132, and AC005746.
HDPLT62	8959	973945	1 - 796	15 - 810	AW392670, U46341, AL119497, AL119443, AL119483, AW372827, AW384394, AW363220, AL119319, AL119457, AL119324, AL119396, AL119363, AL119496, Z99396, AL119484, AL119341, AL119391, AL119355, U46350, U46347, U46351, U46349, AL119444, U46346, AL119335, AL134920, AL134533, AL119439, AL119522, AL134518, AL134902, AL042975, AL134526, AL134538, AL119399, AL042965, AL037205, U46345, AL042970, AL119418, AL042614, AL134531, AL043029, AL042450, AL042995, AL043011, AL042544, AI142139, AL042542, AL043019, AL042984, AL042551, AL043003, AL119464, AL119488, AB026436, AR054110, A81671, AR060234, AR066494, and AR069079.
HDPKI78	8960	773469	1 - 404	15 - 418	W88601.
HDPKA03	8961	923841	1 - 473	15 - 487	AI434789, AW271602, AI813305, N26090, N67808, AI093649, W03392, N36730, AW394104, and AI263776.
HDPJX07	8962	952966	1 - 562	15 - 576	AI085674, AA770353, and AI695338.
HDPJP44	8963	716466	1 - 498	15 - 512	AI770178, AI627506, AI916830, AW236927, AW299782, AI623168, AI347533, AA969417, AW002419, AI763247, AI299571, AI927189, AW136045, AI962542, AA428643, AW207242, AA778307, AI266564, AI334622, AI308144, AI824178, AI675224, AA931817, Z60819, and Z55542.
HDPJK23	8964	488326	1 - 342	15 - 356	W52110, AB020679, and AF067777.
HDPJB19	8965	887886	1 - 279	15 - 293	
HDPJA07	8966	953001	1 - 241	15 - 255	AA021174.
HDPJW95	8967	933240	1 - 814	15 - 828	AI217942, AA885223, AA909021, AA705902, AA306479, H91973, H89928, and AL135175.
HDPJIV34	8968	703959	1 - 477	15 - 491	HI2352, AI343988, HI2300, R71296, and AC007283.
HDPJQ24	8969	771939	1 - 482	15 - 496	H08480, AA580484, AA226996, AA406259, AA402365, and AL022334.
HDPJP06	8970	935198	1 - 570	15 - 584	H70412.
HDPJL73	8971	764344	1 - 328	15 - 342	

HDPIL01	8972	916221	1 - 330	15 - 344	AA515728, AW328331, AI733856, AW069227, AA714110, AI634187, AI133083, AA630854, AA904211, AI754170, AI708005, AI457313, AI866971, AW069412, AA668587, AI044966, AI216990, AI791720, AI791408, AI439910, AA629731, AI049845, AI431513, AI224583, F24745, AA676592, AI889579, AI421257, AI121287, AA714011, AI627185, AA658918, AI187148, AI887235, AA614163, AA458452, AI066646, AW089625, AW083934, T74524, AA595499, AW265279, AA503298, AA483606, D44672, AA570740, AA513551, AA218684, AA513851, AI049643, AA654038, AI277783, AI049630, AI890297, AW338376, AA601230, AA568204, AA171400, AI912401, AI828555, AI733523, AA297802, AI801563, AA507814, AW188742, AI536834, W02749, AI633386, AW104163, AI905408, AI635609, AP000350, AC005696, AL031664, Z84469, AC004066, AC004985, AI034344, AI109627, AL121653, AC007298, AC006050, Z68322, AP000252, AL109952, AC005031, AP000044, AP000112, AC000075, AC003007, AC004000, AL035079, AP000212, AP000134, AC007277, AF053356, U80017, AP000031, AC005632, AL133448, AC004605, Z98200, Z81364, AL035086, AF109907, AL133246, AL034423, AL121655, AC002314, AC006208, AC004893, AC004883, AC005005, AL031848, AC005409, AL096701, AL133163, AL109628, AC005232, AC005228, AF134726, AC007934, AC001228, Z97055, L78810, AC005664, AL049650, AP001053, AC006079, AL031589, AC005527, U47924, AC005701, AC005606, AL034429, AC005206, AC006162, AC003042, AC005602, AC004098, AC002364, AC006547, AC006080, AC006449, AC005529, AF191071, AC005722, Z98048, AC005082, AL020997, AP000116, AL050307, AJ003147, AC004033, AL031673, AP000008, AC005667, AC003043, AC005484, AF196972, Z97632, AL008730, AF129756, AP000248, Z83840, AP000065, AC004796, AC006088, AL024507, AC005412, AL080250, AC002476, AC002553, AC005837, AC005500, AC004821, AC005971, AC007226, Z84474, AC006441, AC004805, AP000326, AC004841, AC005933, AP000054, AP000169, AP000122, AC005726, AC005822, AC005071, AC005911, AP000211, AP000133, AC004966, AC010205, AC004884, AC005800, AC003982, AC004552, AC002120, AL008582, AC005618, AL031846, Z98950, AC000115, AC005037, AL049540, AC007227, AC007540, AP000557, AP000049, Z83838, AP000501, AP000503, AC002477, AC009247, AC006084, AP000311, AF207550, AL035457, AL139054, AL035690, AC005331, AC007688, AL035659, AC005695, AC002470, AP000365, AC004895, AC004967, AL022336, U91327, AC002350, Z93017, AD000092, AC005003, AL049776, AP000299, Z93930, AP000103, AC006057, AC002312, AC004962, AL031283, AL031311, AC006487, AC006581, AL035405, AL031276, AC005057, AF111169, AL021453, AC006130, AC007637, AL133355, L78833, AL031778, AC004019, AJ236701, AP000692, AC005089, AC005531, AL096766, Z98051, AC008040, AC004663, AC002551, AL031864, AC002306, AC004752, AC005779, AC002563, AL049734, AC005740, AP000045, AP000113, AC005015, Z98044, AC007057, AL049872, AC003108, AL117338, AC004150, AC005900, AC007160, Z83844, AC006512, AC005859, AC005944, AP000688, AC006360, AJ251973, AL050318, AP000504, AL121769, AL117258, AL096791,
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HDPIF78	8973	881960	1 - 347	15 - 361		
HDPIF66	8974	750575	1 - 431	15 - 445		
HDPIF54	8975	729441	1 - 556	15 - 570		†
HDPID88	8976	415993	1 - 409	15 - 423		R73297, AL287533, AL279683, U75370, and AC004449.
HDPID53	8977	728058	1 - 416	15 - 430		H10868, and AL031681.
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HDPLA21	8978	827350	1 - 459	15 - 473		AC002400, AF134726, AP000503, AP000049, AP000311, AC009784, AC005856, AC004905, and AC007546.
HDPHF37	8979	706622	1 - 313	15 - 327		
HDPHA89	8980	786078	1 - 495	15 - 509		AA056286, AA054104, R88858, H83463, H86714, H84085, AA011139, AW160888, AL570404, F05284, R69197, and AA015680.
HDPHA40	8981	711126	1 - 376	15 - 390		AA010368.
HDPHA37	8982	812336	1 - 494	15 - 508		AB002378.
HDPHA34	8983	704036	1 - 500	15 - 514		H63370, and AC005495.
HDPGX15	8984	660089	1 - 448	15 - 462		AC008282.
HDPGX10	8985	964519	1 - 714	15 - 728		AA281456.
HDPGX03	8986	924010	1 - 396	15 - 410		
HDPGT96	8987	973363	1 - 453	15 - 467		AL021938.
HDPGS93	8988	792256	1 - 454	15 - 468		AF107885.
HDPGS45	8989	921381	1 - 355	15 - 369		T85104, T80174, N73918, W02957, AA910341, and AC005562.
HDPGS43	8990	715232	1 - 453	15 - 467		AI038997, AI458126, AI457736, N57242, AI087313, AA648507, N41553, AI655523, AI827737, and AC000119.

HDPGS16	8991	909833	1 - 447	15 - 461	AA774560, AA530983, N42742, AA825514, AJ245709, AF124141, AF135794, AL117525, AF124142, and D49836.
HDPGS01	8992	916352	1 - 454	15 - 468	
HDPGR44	8993	468389	1 - 213	15 - 227	
HDPGN15	8994	394693	1 - 452	15 - 466	AA502207, AI050076, AA877992, R82650, AI368732, AL120141, W63553, AA211734, AW023111, AA938390, AA630122, AA493789, AA482844, AI160786, AA569059, AA737235, W01323, AA482776, AL024508, AC000353, AC005790, AJ003147, AC004815, AL034549, AL137705, AC007096, AC000159, AJ012008, AP000504, AF129756, AC006208, AF196969, AC004874, AL022314, AL030996, AL035413, AF001548, AC007541, AL109753, AC004227, AC005531, AC005529, M55987, AC002559, AL035405, Z81010, AP000362, X55448, AC007748, AL032822, AC002375, AC000029, AC007227, L44140, AC006538, AC010186, Z98885, AC002094, AC006236, AL133312, AC005535, AC018767, AC007637, Z93017, AC003071, AL096701, AC007546, AF073485, AP000256, Z68324, AP000098, AL031775, AL021393, U80017, AL132987, AL035089, AC010183, Z97353, AC006430, AF088219, AC005088, AC005156, AC006211, AC005484, AC005189, AL034417, and AC006344.
HDPGN13	8995	416046	1 - 442	15 - 456	AA586451, AA515742, AI298079, F34468, AA657910, AA640252, AA831997, AI499954, AI800345, AA338635, H16875, F26713, AA161305, AA506952, AW029269, T08205, AA229159, AW242279, AI627868, AW071109, AL134167, AL041019, AL041018, AA550989, H73306, AW392414, AL045476, AW408596, AA948670, AW341955, T41134, AA658890, F37201, AI471455, AW439703, AI687343, AA111870, F34605, AI680547, AW162227, AA728925, AW377926, AL135363, AA657392, AI054326, AA056206, AA836097, AA678950, AA325466, AW407632, U51704, AA584655, AA315052, AI801824, AI147511, AA311432, AA429481, AA554257, AL035685, AC007204, AC005206, AC004686, AC005667, AC007685, AC005366, AL109842, AC004961, AC006578, AB020859, AC005866, AB001523, AC007021, AC002314, AL034423, AC006084, Z49236, AJ251973, AF001549, AC002115, AB026899, AC005899, AC003691, AC008122, AC000402, AC002322, U62631, AC004491, AC004234, AL109984, AC005183, Z98752, AC006262, AL021393, AC006120, AL096818, AF030453, AL008707, AC004820, AC005091, AP000500, AC004963, AP000501, AL031585, AL139054, AC002470, U53930, AC002544, U53583, AL050321, AC004743, Z93023, AL009181, AF053356, AC004560, Z98256, AC004692, AC002543, AC007934, AL031686, AC005189, AC006540, AL078602, AC006071, AL096701, AC007199, Z93930, AP000512, Z69921, S79836, U11297, U08438, AP000065, AC007040, AC006001, U97187, AL049653, AC004638, AL031904, AF111170, AC007358, AC007066, AC004851, AC011504, AC005666, AC008015, AC005519, AL137716, AB014079, AC007381, AC006139, AP000514, AL049814, AC007537, AC006270, AL031284, AC003037, AL022163, AC006312, AC005695, AC005796, AC005089, AC007193, Z68323, AC004876, AF196971, AC004466, AL035652, AJ246003, AC003982, L31848, AC004752, AL096767, AC004741, AC006367, AC011456, AC007057, AL031315, AC005102, AL022722,

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HDPGN11	8996	966923	1 - 388	15 - 402	AA767082, AL554821, AL064787, AL815232, AA814782, AL312428, AL580927, AL036802, AA504514, AW071380, AL499512, AL801544, AW131282, AL520862, AW089689, AL538878, AL909661, AL634737, AA715307, AA613907, AL036656, AL045421, AW080565, AL499191, AL923989, AL440263, AL038779, AL582932, AA641818, AA761557, AL46248, AL923509, AL886415, AL889189, AL281773, AW151136, AW243741, AL475394, AL635492, AL866465, AL597918, AL539771, AL121270, AL364788, AL537677, AL064830, AL500659, AA809974, AL801325, AL500523, AL284517, AL500706, AL491776, AL445237, AW151138, AL521560, AL500662, AL284509, AL889168, AL866573, AL633493, AL434256, AL624543, AL888661, AL284513, AL888118, AL371251, AL436429, AL859991, AL872423, AL440252, AL909672, AW087445, AL036901, AL045774, AL121328, AL678989, AL371228, T79374, AL047422, AL269862, AL433037, AL039730, AL355849, AW117882, AL640873, AL343030, AL340519, AW128983, AL494201, AL110402, AL866469, AL345608, AW081133, AW172723, AL860003, AL805769, AL906328, AL432656, AW162194, AL889147, AL345587, AL866786, AL610557, AL633125, AW059828, AL887499, AL045500, AW083804, AL282655, AL340511, AL119791, AC007392, AL022315, Z49258, Z82206, AL033521, AC005291, AL022723, AC006112, Z99495, AC009233, AC004383, AL021391, AL035407, AC018767, AP000355, AC005156, AC007298, AP000020, AL031984, AC005048, AC004837, AC005520, AL022147, AL122021, AC002416, AL034417, and AC005224.
HDPGJ49	8997	722903	1 - 296	15 - 310	N59681.
HDPGI75	8998	766618	1 - 464	15 - 478	AA644090, AA081825, Z81365, AL035683, and AL020995.
HDPGI74	8999	765524	1 - 453	15 - 467	AL033397, AL031685, AL050318, AC005072, Z99127, U52112, AC006511, AC002430, AC004491, AC007384, AL034400, AL109628, L44140, AC008372, AC011362, AC004834, AC003101, AC002565, AL080243, AC006238, AF006752, AC006453, AC005740, AC005778, AC004825, U91323, AC005015, AC005529, AC005089, AL020997, AC004953, AP000697, AC003003, Z95115, AC007386, AC005562, AL049758, AC005756, AC005206, AC004887, AC005952, and AC005667.

HDPGH73	9000	764397	1 - 104	15 - 118	AA111917. AI032747, AI769719, T79745, and AC004751. AA523394, AA484596, AA484372, AL042753, AL042377, AL1475660, AA464969, AW024544, AL045360, AA603359, AA808153, AI500553, AL138455, AL134524, AA974503, AL043095, AW117882, AL040319, AA177033, W95924, AI440426, AL046110, AA947997, AI696846, AI433157, AL042891, AA760655, AI863014, AC005081, AC007055, AC004491, AF196779, AC005015, AC006530, AC006285, AC006064, AL121653, AC005971, AC006480, AL109627, AF205588, AC006071, AL022316, AC006211, U47924, AP000692, AC005696, AL096791, AC004686, AL008719, Z83844, AC005225, U91326, AC005291, AC006057, AC007227, AC005231, AC002464, AF111168, AL035659, AC016025, AC002395, AC007216, AC020663, AC006014, AL022238, Z82206, AC005519, AC009516, AL121603, AP000557, AL022723, AL096701, AC005207, AC007664, AC004797, AC005399, AC007686, AC002544, AP000501, AL049569, AL009181, AC016831, AC009247, AC006312, AL022721, AC005800, AC005488, AL031311, AL049757, AL035587, AC005082, AC004841, AC004883, AL080243, AC005736, AC016830, AC002073, AC008372, AF001548, AL049694, AC005529, AL050318, AC006241, AD000092, AC004966, Z93930, AL049776, AL050348, AC004213, AC005618, AL031680, AC007051, Z85986, AC006039, Z77249, AF091512, Z99716, AL136295, AC005089, AC003982, AC002477, Z98051, AC002430, AL035086, AP001053, AC006441, AL096776, AL022336, AF109907, AC004257, AP000088, AF001549, AC002558, AC004878, AC004605, AC004882, AC002347, Z97056, AC007384, AC005962, AC004263, AC002039, AF093117, AC005071, AC004150, AC007277, AC005102, U95090, AC004813, U95739, AL135744, AC005072, AC004987, AF042090, AL132712, AP000513, AC002425, AC005755, AL034548, AL021707, AL078463, AC004832, AB004907, AL049872, AL022165, AC005874, AF134471, AC005726, AL034555, AC004383, AC006277, AC007676, Z84466, AC005180, AL049795, AL022476, AC002350, AL008582, AC004814, AL031229, AL049759, Z98200, AL034420, AC006040, AC003070, AC005409, AC005881, AC007458, AF047825, AC006953, AC005778, AF129756, AC004921, AC006449, AC006077, AF053356, AC002316, AF019413, U95742, AC008040, and AL133445.
HDPGG01	9001	916389	1 - 304	15 - 318	
HDPGD28	9002	879489	1 - 433	15 - 447	
HDPFZ70	9003	709684	1 - 761	15 - 775	
HDPFW02	9004	919306	1 - 558	15 - 572	T39977, and AL050337. W72416, AA955016, and W76266.
HDPFS71	9005	486744	1 - 467	15 - 481	
HDPFS59	9006	486737	1 - 462	15 - 476	
HDPFP96	9007	796360	1 - 451	15 - 465	
HDPFP71	9008	760327	1 - 797	15 - 811	
HDPFP14	9009	486765	1 - 478	15 - 492	
HDPFN23	9010	486738	1 - 442	15 - 456	
HDPFM28	9011	486766	1 - 469	15 - 483	

HDPFL52	9012	486739	1 - 469	15 - 483	AC007281.
HDPFJ58	9013	783957	1 - 352	15 - 366	W05340.
HDPFD10	9014	964521	1 - 705	15 - 719	AA424163, and AI350948.
HDPFB03	9015	936331	1 - 678	15 - 692	AI694127, AI299320, H70360, T98966, AA356015, AL045292, AA236204, AA131671, AW118104, W20295, H75919, N31893, R98291, AL117517, and AB023221.
HDPDH08	9016	959303	1 - 344	15 - 358	AA082104, and AA134717.
HDPDD12	9017	970592	1 - 964	15 - 978	AI939431, AW020534, AI347310, AI371784, AI423466, AW150254, AW015338, AI361447, AI419452, AI088725, AI371086, AI418456, AI361506, AI419176, AI363726, AW176344, AL120300, AI424173, AW016674, AI288889, AF097450, AF146793, AF011568, AB002332, and AF000998.
HDPDC90	9018	590161	1 - 641	15 - 655	T52186, and Z97630.
HDP CY47	9019	775412	1 - 402	15 - 416	W38488, N27984, AA649285, AA661773, AA298770, AA306867, H81350, AA100476, AA310276, AA417302, AA314322, AI815642, AA045597, D82429, R89903, AA130829, R83064, AA382073, AA297193, AA100050, AA344066, AA311797, T85780, AA334159, AA314221, N51146, AL122042, and AC007842.
HDP CP89	9020	786075	1 - 384	15 - 398	AA494163, T52475, and AC004148.
HDP CP64	9021	746527	1 - 320	15 - 334	AL022329, and AL022332.
HDP CP48	9022	721620	1 - 406	15 - 420	
HDP CP46	9023	719014	1 - 447	15 - 461	
HDP CP43	9024	715227	1 - 432	15 - 446	AI751151, AA418897, AA195596, AA491307, T54037, AA339713, AI751325, W79862, N41703, AA099015, H71376, AA307241, AA371799, AA485793, AA300777, AA299440, AA485195, N28794, AA313589, R85229, AA491479, H52010, AA471326, AA227051, H13340, AA218541, AA216580, R72732, AA330733, AA227045, N36603, AA219518, W52126, AI336290, AA213719, H30288, R94642, AF112482, J04794, AF036680, and AF112484.
HDP CP16	9025	416032	1 - 408	15 - 422	
HDP CO12	9026	852847	1 - 446	15 - 460	N23913, AI674840, AL079734, AI206841, AA502991, AA452887, AL119691, AA581247, AW023111, AL038842, AA644090, AI189682, AA832444, AI799569, AI889426, AA525764, AA765925, AI192440, AA503298, AI306149, AI627917, R34070, AA427470, H68343, AI962030, AA582554, AI066711, AA610642, AA837035, AA063008, AA468196, AI610468, AI421257, AA525331, AI610737, AA584862, AI791659, AW327624, AI267884, AA121777, AA832175, AA491767, AW245860, AI565126, AA405726, AC005632, AL031589, AL078472, AC006505, AP000967, AF196779, AF200465, AC000353, AC006952, AP000704, AC006312, AL049829, AC004859, AC007707, AC002091, AP000362, AB023048, AC004526, AC007666, AC002300, AC007283, AC003101, AC004491, AC005049, AC007774, AL031729, Z83822, AL139054, Z85996, AC005058, AL117355, AC002996, AL049569, AC002352, AC007011, AF030453, Z84480, AL133163, AP000510, AC002544, AC005412, Z83308, AC008033, AC005220,



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HDPCN88	9027	416035	1 - 439	15 - 453	
HDPCN73	9028	764400	1 - 435	15 - 449	
HDPCN33	9029	416028	1 - 339	15 - 353	
HDPCM66	9030	852849	1 - 459	15 - 473	
HDPCM62	9031	454740	1 - 451	15 - 465	D25538, Z49806, and U12919. AI525779, AL048467, Z98468, AI132950, AL037961, AA467916, AI540982, AA523369, CI7914, AA147138, CI7592, AA503155, AA177092, AA180879, AA641056, AA610797, AW270568, CI8849, AA182403, AA469384, AA115399, AA468916, AA533146, AA147875, AA180941, AI133326, AI525589, AA248428, AA469455, AI557370, AI525553, AI557341, CI7520, AA828615, AA181413, CI7634, CI6951, AI880907, AA178872, AA548209, AI720611, AL038782, AI832713, AA579252, AA468090, AA134092, AA467874, AI720582, AA524630, AA195788, AI564503, CI7424, AI888059, AA192670, AA652263, AA194546, AA523654, AA131426, AI557313, AI535678, AI749086, AI459469, AA187125, AA229365, AA737156, AA501707, AI557102, AA214681, AA879244, AA180873, AA112861, AA194379, AA194687, AA569535, AA182903, AA182943, AA533654, AA522594, AI525571, AA991485, AI749735,

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HDPCI45	9032	974424	1 - 369	15 - 383	
HDPCH85	9033	973314	1 - 508	15 - 522	
HDPCG33	9034	495711	1 - 509	15 - 523	
HDPGB67	9035	878776	1 - 286	15 - 300	AA723077.
HDPBQ75	9036	466645	1 - 416	15 - 430	H68565, and AF064553.
HDPBP64	9037	746537	1 - 368	15 - 382	R51480.
HDPBI31	9038	852885	1 - 628	15 - 642	AA477369, AI914713, AA878492, AA678616, AA659832, AA714073, AW078821, AW390284, AI347665, T08386, AA644223, AA581498, AI472736, AA662989, AW440568, AA678932, N66927, AW081610, N67313, AI889995, AA126814, AA452325, W96277, AW005974, F02342, AA020873, AI619994, AI697425, T26476, F26072, AA657910, C14330, AI718462, AI683116,

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HDPBF15	9039	852880	1 - 392	15 - 406	AA284570.
HDPBE85	9040	783544	1 - 661	15 - 675	AA682505, R11150, T79291, T79204, R11151, and AI140542.
HDPAX21	9041	670893	1 - 487	15 - 501	T63648.
HDPVAV46	9042	719027	1 - 403	15 - 417	AA100330, and AF037222.
HDPAP04	9043	615193	1 - 384	15 - 398	T87401, AW021289, and AI121748.
HDPAP068	9044	972332	1 - 1554	15 - 1568	Z99396, AW392670, AI119319, AI119457, AI119483, AI119324, AI119443, AI119484, AI119391, U46350, U46347, U46341, AW372827, AW384394, AI119497, AW363220, AI119363, AI119355, U46349, U46341, AI119522, AI119439, AI119444, AI119341, AI037205, AI119401, AI134531, AI119396, U46346, AI119418, AI119335, AI134538, AI042542, AI134518, AI119399, AI119496, AI134920, AI134533, AI042965, U46345, AI043011, AI043029, AI042544, AI042614, AI043019, AI042975, AI042450, AI042984, AI043003, AI042551, AI119464, AB026436, I25027, AR054109, I44515, I26928, I26930,

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HDP AO64	9045	746550	1 - 445	15 - 459	T65324, AA575982, F09955, H88491, and AA947153.
HDP AN94	9046	901123	1 - 450	15 - 464	AA917335, Z20320, AL080176, AF144235, and A74743.
HDP AK09	9047	494170	1 - 437	15 - 451	AW168420, AI254913, F12561, AI382825, AA846952, F08248, AA579999, AI751216, AA302973, AA613627, AA578621, AI818737, H07953, AI536552, N22037, AA760808, T74524, H67863, AC005755, AL049694, AC004662, AF134726, AC004605, AL021393, AC002994, Z98051, AC005261, AL034417, AC004019, AC005484, AL049779, U91321, AC002074, AC007216, AC007637, AC007242, AL031282, AC006001, AC005411, AC005900, AF053356, AC004805, AC004526, AC006344, AF111168, AL022329, Z82206, AC005899, AP000555, AC004881, AC002302, AC005668, AC005086, AC004985, AC011331, AL049830, U95742, AC004996, AL031255, AL035071, AC004975, AL049697, AL049758, AC002312, AF117829, U85195, AC005534, AL035423, AL035683, AL122023, AC007676, AP000502, AC005726, AE000658, AL080243, AC005071, AF001549, AC007226, AF001548, AC006120, AC004067, AF196779, AC002350, AC002429, AC006379, AL109628, AC007225, AL035681, AJ010770, AC005529, AF088219, Z85987, AC006040, AC003010, Z83840, AF030453, AC005391, AL109754, AC005088, AC007376, AJ011930, AC002476, AC004099, AC005049, AL049766, AC005602, AC005756, AC003080, AC006946, AC006026, AC010205, AC005829, AC007690, AC004757, AC006043, AL109952, AC000052, AC002316, AC004695, AF031078, AC005027, AL139054, AC007731, AC006965, AC005500, AF030876, AC005015, Z99716, AC007878, AL035403, U07562, AC006480, AC004890, AL023575, AC004000, AL031659, AC005324, AC006538, AC007308, AC005046, AL117258, U91318, AC005320, AL078477, AC016025, AC005512, U89337, AC007666, AC004797, Z97056, AC006966, AL022722, AC006039, AP000045, AL035398, Z94056, Z85996, AC006023, AB001523, AC004821, AC005962, and Z82198.
HDP AJ64	9048	881654	1 - 428	15 - 442	
HDP AH17	9049	663779	1 - 573	15 - 587	AA680145, W60281, T86901, AW058463, W60373, T86900, Z54200, and AF106862.
HDP AF40	9050	856391	1 - 555	15 - 569	T92908, I92904, AA504485, T92996, and T93000.
HDP AC90	9051	787296	1 - 806	15 - 820	AA020898, H48269, AA599610, AI809570, W73575, AI693860, AI393815, AW339773, T51762, T51608, and AA284050.
HDP AC78	9052	773570	1 - 226	15 - 240	H82420, H82680, and AL078581.
HDP AB34	9053	581900	1 - 442	15 - 456	T94880.

HDPA80	9054	775417	1 - 501	15 - 515	T84574, and AI192443.
HDPA38	9055	546575	1 - 690	15 - 704	AL037050, AW081941, AW406447, AA342901, AW088058, AA916039, AW074398, T71998, AI299050, AI281903, AI689097, AA610491, AI054246, AI053816, N71724, F19258, AA095511, AF177861, AA336362, AA377385, AW272758, AA501722, AA340003, AA308806, AA318652, AI357551, AI565245, AI886176, AW236342, N22059, AI364809, AA491814, AI859251, AA515435, AW301818, AI919265, AI138265, AI287451, AA177061, F29989, AW440976, AI053429, AI053672, AI274692, AI696962, AI040547, AI307426, AI284640, AA932099, AI334443, T06556, AW340844, AW361583, AI358229, F36273, AA743956, AA553465, AI963095, AW406755, AI200051, AI291124, AI365988, AI654588, AI291268, AW071063, AI537030, AW339687, AI635272, AI133164, AA321311, AI216799, AI016000, AI041368, AI138455, AA252763, AA652057, AA649642, AI264743, AI610159, AI469172, F24284, AI690686, AI623132, AA745410, AI048616, AA654627, AA601892, AI537955, AA454925, R13151, AI446601, AI801591, AA501784, F32705, AP000356, AC006004, AI121603, AC006064, AC005215, AC004814, AC005940, AI034420, AC004491, Z73359, AP000245, AI049636, AC006480, AF053356, AP000556, AC004894, AC002350, AP000552, AC005324, AL020993, AL022324, AC002072, AC004895, AF045555, AF111168, AI121653, AC005619, AC002316, AC003043, AC006285, AC004477, AC005800, U07562, AC005412, AC005081, AI121655, AI121658, AC006001, AC005046, AC005099, AC005722, AI096701, Z84484, AF111169, Z97054, AC007225, AC005920, AC007216, AC007899, AC005015, AF196779, AC007878, AL035683, AC004966, AI033521, AL035460, U95742, AC004962, AC007242, AC006388, AC000025, AC000083, AP000210, AP000132, AC004534, AC006111, AC004156, Z82214, AL096791, AC007276, AC007371, AC007686, AC016025, AC005529, AC006312, AC008041, AC004812, AL021453, AL033392, Z86061, AI132718, AF129756, AI031584, AC006153, AL049779, AL021918, AC007707, AC005157, AC005037, AP000030, AP000558, AL023284, AC005790, AL109967, AC007666, Z98742, U91323, AC007011, AP000248, AF001549, AC004815, AC008134, AC005284, AC004890, AC006251, AC005066, AP000251, AP000557, AC004964, AC005280, AC005696, AL024507, AC003982, AC006071, AC004841, AP000474, AL049569, AC006211, AC008101, AC009330, AC007277, AC000078, AF196969, AL079340, AC002070, AC000052, AL049830, AC004745, AC007450, AL024498, AC005180, AL133243, AL031228, AC005666, AC003119, AC004150, AL035587, AL035090, AL035249, AC003104, AC006195, U91326, AC005250, AL031005, Z98743, AC007537, Z98048, AI251973, AC002432, AC004776, AC007262, AC005694, AC004148, AC009516, AC004983, AC000159, AC005562, Z84466, AC006057, Z82901, AL031848, AC005288, AC005625, AC005510, AC002369, AL109802, U89337, X64467, AC007387, AL034451, AI010770, AC007688, AB026898, AL021391, AP000311, AC002312, AC004472, AC005755, AC004750, AL031777, U47924, AL022323, Z93017, AC002525, Z82182, Z85987, AC004770, AP000692, AL035450, AF042090, AC004813, AL031230, AL132777, AC002115, AC004650, Z83844, AL008582, AC005911,

HDLBE11	9056	966230	1 - 365	15 - 379	AC007324, AJ003147, AF017104, Z98946, AC007919, AC005821, AJ246003, AL117351, AC005041, AC003041, AC007358, AL133355, AL035411, AC005919, AC008115, AL031255, AC005913, AF134726, AC006012, AC008079, AC005358, AC004694, AC009044, AC003102, AL109628, AL031053, U85195, AF109907, AL049766, AC003986, Z82250, AC007051, AL049780, AJ006996, AC004907, AC002096, AC006088, AC006077, AL050341, AC005399, AC005331, AC005997, AL022165, AL078463, AC006323, AP000045, AC005242, Z99716, AC005295, AP000555, and AC004996.
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HDLAX74	9057	765091	1 - 543	15 - 557	AA059372, AA063107, H92283, and AL096766.
HDLAX52	9058	726241	1 - 819	15 - 833	AA033545, AW265437, and AA332853.
HDLAW58	9059	735559	1 - 869	15 - 883	AA461055, and AL371831.
HDLAV11	9060	852919	1 - 296	15 - 310	AA481536.
HDLAG57	9061	565105	1 - 429	15 - 443	AI354333, AA715876, AI538236, AA828153, AW080910, AL049712, AC008079, AP000501, AC007226, AC007899, AC005082, AC005920, AL021393, AL031737, AC005378, AL049830, AL009031, AC006271, AL008583, AC004796, AL022320, AL049869, AP000552, AP000493, AC007790, AL078623, AC007384, AC007216, AL132826, AC002326, AL020997, U95742,

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HDLAC67	9062	751699	1 - 423		15 - 437	
HDLAC51	9063	799888	1 - 476		15 - 490	
HDLAC30	9064	799891	1 - 267		15 - 281	
HDLAA58	9065	736081	1 - 479		15 - 493	AA447870, AA447714, AA574205, AA502267, AC012384, AC004941, and AC006463.
HDCBF12	9066	969401	1 - 446		15 - 460	AI874270.
HDCBD07	9067	951948	1 - 416		15 - 430	AI559233, and AC005955.
HDCAN06	9068	933818	1 - 332		15 - 346	AA128887, AA128895, AP000542, and AJ239321.
HDCAG61	9069	852968	1 - 495		15 - 509	AA658364, AI096634, and AI767001.
HDBAK09	9070	625387	1 - 705		15 - 719	N57222, and AL033377.
HDBAA11	9071	966723	1 - 447		15 - 461	AA680050, AI821757, and AW270550.
HCWWH01	9072	915420	1 - 496		15 - 510	AI690025, AA719414, AA502477, H71101, Z36759, AA584859, AC003684, AC005529, AC005527, AP001052, AC006211, AC000025, AC005581, AL022717, AL021155, AL022578, AC006270, AC004910, AC006026, AC004682, AC004884, AC008040, AF196779, AC003010, AC008116, AC006077, AL022319, AL117338, AC007225, AC004382, AL034429, AL008722, AL022336, AF196969, AC005412, AC008072, AL009172, AC005088, AC005697, AC009516, AC006449, Z94056, AC004638, AC009294, AC005089, AC004685, AC004963, AL080243, AC005776, and AF030453.
HCWVA80	9073	974488	1 - 457		15 - 471	AC007349.
HCWUS57	9074	974462	1 - 565		15 - 579	N88601, N84855, AA247827, N84048, N83992, AA096046, AA095359, N89520, N83991, N83168, AA247964, N88782, H58760, AA093224, N55698, AA095641, AA096066, AA471338, N84718, N86694, N83993, N84712, N88518, N84830, N87989, N84829, AF102850, U48696, AF039698, AR066487, AF103726, S78798, AF045432, AF032922, AJ243486, and U39066.
HCWUS50	9075	974467	1 - 568		15 - 582	N88782, N84855, N88601, H58760, AA095359, N83991, N83992, AA096066, AA096046, N83168, AA247827, N89520, N84048, AA247964, AA095641, N84830, N84712, AA471338, N84718, N86694, N55698, N83993, N84829, N88518, N87898, AA089553, U39066, AF102850, AR066487, AF103726, S78798, U48696, AF045432, AF039698, AF032922, and AJ243486.
HCWUQ81	9076	853002	1 - 505		15 - 519	H83216.
HCWUQ10	9077	964080	1 - 471		15 - 485	AI082150, and AA865640.
HCWUP62	9078	743064	1 - 597		15 - 611	H44723, AI820826, H26859, and AI820767.
HCWUM01	9079	974466	1 - 634		15 - 648	H58760, AA096046, N88601, N84855, N83168, N88782, AA247964, AA095359, N83991, N89520, N83992, AA247827, AA096066, N84048, AA095641, N84830, N84718, N86694, N55698, N88518, N83993, N84712, N87989, AA471338, AA089553, N84829, N87898,

						AC005226, AF103726, U48696, AF039698, AF102850, S78798, AR066487, AF045432, AF032922, AJ243486, and U39066.
HCWUL35	9080	706530	1 - 679		15 - 693	AA418115, AA417937, and AA763368.
HCWUI49	9081	722674	1 - 396		15 - 410	AA126089.
HCWTP17	9082	662486	1 - 430		15 - 444	AJ417821, and N25970.
HCWTL02	9083	919252	1 - 608		15 - 622	AA446435.
HCWSC38	9084	706523	1 - 533		15 - 547	AA428577.
HCWLA43	9085	927571	1 - 427		15 - 441	N57837.
HCWKT71	9086	888167	1 - 333		15 - 347	
HCWKS70	9087	757172	1 - 340		15 - 354	AA526413, AI521525, AI249365, AW238712, AL040430, AI188049, AA286836, AW020150, AI278372, AW327852, T30864, AI557422, AA572974, AA745302, AA947265, R49266, AA729253, H91704, AA683069, AA525807, AW022897, AA370037, F01222, AW243945, AL041681, AL041682, AI567391, AL035681, AP000344, AL031120, AL096791, AL022165, AC007363, AL034429, AP000359, AP000301, AC005998, AC009247, AF047825, AF039906, AF045555, AC005484, AL132712, AC005702, AP000116, AL122020, AC007934, AC004815, Z82190, Z98036, AC004144, AC004834, AC004148, AL049576, U91319, Z98884, AC007225, U63721, AC005520, AC006270, AC002558, Z93930, Z85986, AC009509, AP000555, AL023805, AC005037, AP000252, Z84480, AP001053, AF064861, AC005288, AL020997, AF112482, AP000080, AC006965, AC004476, AC004890, AF111168, AL008718, AC007842, AC004560, U47924, AL133243, AC006468, AC007227, AL049830, AC002563, AL031577, AC005913, AC002314, AL034549, X89398, AC005015, AC005231, AC007308, AP000505, AC019014, AL022326, L78833, AC002310, AB020865, AP000691, AC005412, AL049692, AC005971, AC006132, AC004878, AP000547, AC002288, AC005225, AC012330, AC005089, AC005510, D42052, AC003982, AC005736, AC006960, AC004983, Z82198, AC006241, AL049760, AC007676, Y14768, AF205588, AC005488, AL031295, AC000094, U91323, AF031078, M27147, Z93017, AC005387, AL008729, AC000003, Z98304, AC004000, AC004019, AC005102, AL049569, AC005057, AL035458, AC004623, AC005932, AC008372, AC016025, AC002511, AC005399, AF030876, AF129756, AC007193, AC004814, AC005874, AF134471, Z97056, AF176815, AP000354, AC005632, AC004998, AC003104, AC002389, AP000212, AP000134, AC005839, AC005730, AC004916, AC005212, AC004685, AC004024, AL096703, AC007536, AC005899, AC005067, Z83844, AL049776, AP000501, AL096766, AC007666, AL135744, AC005755, AF195658, AC004466, AL132987, AC008132, AL031229, AL034402, AL121603, Z69921, AC006261, L47234, AC002565, AC004821, AC003026, U07561, AC002316, AL035450, AC006050, AL049758, U95739, AC005328, AC008012, AL117356, AC004526, AP000131, AP000209, AC002400, AP000141, AC004382, AJ009610, AC004876, AP000045, Z98886, AC006064, AC007055, U85195, AC005722, AC002477, AC007384, AF030453, AL133245, AC006948, AC005207, Z97054, AL009181, Z85987, AC003983, AF001552, AC005527,



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HCWKS35	9088	706518	1 - 319	15 - 333	AL121879, and AC002526.
HCWKR86	9089	784705	1 - 369	15 - 383	
HCWKR85	9090	783555	1 - 271	15 - 285	AI811879, AW270258, AA659360, AI254779, AA602906, AW438542, AW075729, AI708005, F00564, AA700943, AA622801, AW117740, AA833896, AA833875, AA769429, AL048275, H53217, AA765170, N72170, AW020992, AI249886, AW438539, F02999, H66577, AI654247, R95840, AI253376, R94288, AI281881, AW304805, AA470567, AA302978, H60249, AC010169, U67818, AC007055, AL109984, AL121655, AF039907, AL139054, AC006077, AC006211, AC016027, AC006441, AC016830, AF053356, AC005015, AC002477, AL049631, AL049780, AL035422, AC004067, AC002350, AC002351, AC004031, AC007199, AC004752, U78027, AC006251, Z97184, AC007565, AC006480, AC004087, AL031311, AP000299, AL133246, AC005911, AF111168, AC005377, AC006323, AL021939, AC004922, AC007551, U85195, AC005914, AP000032, AL022163, Z97056, AL022311, AC004815, AP000212, AP000134, AC004382, AC002429, AC006333, Y15727, AE000658, Z83840, AC004893, AC005837, AC005200, AC004983, AC002463, AL031291, AL050321, AL031666, AC005821, AC005180, AL080243, AC002544, Z93023, AC006312, AC007688, AF196779, AC005940, U34879, AC002107, AL049776, AP000045, AP000113, AC005264, AL049856, AC005273, AC005902, Z93241, AC005488, AC004796, AJ010770, AC004805, AL031848, Z81364, AC006014, U91326, AC003098, AC005369, AF088219, Z99943, U73637, AC007263, AL133353, AF017104, AC005089, AC004841, AF111167, AC002312, AC005295, AL031985, Z93020, AD000833, AL049872, AF001552, AC005620, AL049713, AL022165, AC000039, AF031078, AC020663, AL021154, AL021394, Z82976, AC005520, AL023803, AF047825, U52112, AC007860, AC004821, AL023575, AC005225, AL133245, AP000555, AF015416, AC004148, AC005722, AL022476, Z83826, AC005562, AF030876, AC007308, AC004000, AL096701, AC007277, AC004216, AC004125, Z70280, AC004638, L78833, AC004686, AL022320, AC004099, AP000563, AL030996, AC005484, AC006208, AC005048, AL033521, AL031602, Z82208, AC005086, AC005183, AP000692, Z97054, AC006449, Z68870, AC002531, AC004914, U15177, AF207550, AL096801, U07563, AC005756, AL022316, AL035398, AL096791, AC004647, Z98941, U95743, AC005519, AC005399, AC004675, AP000431, AC004913, AC003104, AL023553, AC002072, AC007868, AL049766, AC002543, AP000501, and AP000346.
HCWKR62	9091	742602	1 - 314	15 - 328	H78195, AI284640, AA581903, AA652764, AA482711, AA111909, AI431303, AA631363, F29989, AW419262, AA214342, T53128, AL041690, AA514737, AI817516, AW088202, AW327868, H171429, AA669840, AI282310, AA192740, AA650211, AA178953, AA483223,

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HCWKR51	9092	725027	1 - 329	15 - 343	AI376239, AI887314, AI224387, AI632810, C15060, AI857756, AI457313, AI634187, AW069227, N58179, AA630535, AA452887, AA598927, AW151247, AI192839, AA669054, AA811741, AA743968, AA218720, AA084609, AW082470, AA368616, AA604865, AA548886, AA340581, AA581247, AI471476, AI912401, AI066646, AI357628, AI537995, AI536858, AI130709, AI955029, AI491765, AA021189, II07953, AA626829, AW272640, AA021429, AI742168, AA481887, AA489240, AI370170, AA659608, AA086318, AW080356, T74524, AA515457, AW188742, AA493731, AW304699, AI679221, AA598605, H84412, R43992, H48767, AA666295, AI289941, AI802087, AI289942, AC005058, AC007421, AL049636, AL031685, AC016027, AL021878, AC016830, AC002996, AC005225, AJ003147, AC002302, AC005940, Z84466, AL035587, AL049776, Z97876, AC005512, I34294, L24093, AL080243, AC004531, AC004216, Z98946, AC005082, AC005844, AC004542, AL034420, AC006347, AC005231, AC004817, AC006449, AL049697, AC005071, AL024508, U63721, AP000501, AC006285, AC002352, AC005412, AC005006, U80017, AP000212, AP000134, AC005881, AC002565, AC005200, AC004598, AL035690, AC002369, AC005971, AC007671, AF047825, Z85986, Z84480, AC002303, AC005049, U95739, AL021578, AC007051, AC004590, AC006006, AL022721, AP000252, AL049830, AC005696, U91325, Z85987, AC002045, AC004878, AC005295, AC006538, AL096701, AC006014, AC012331, AC005041, AC000079, AL136295, AL031311, AC004477, Z83844, AC003109, AL031431, AC007917, AC002350, AL049839, U91321, AC005378, AC008372, U52111, AC003982, AC005839, AC006111, AL121603, AC006468, AL110502, AC004815, AC004882, AC005520, AL049869, AC005399, AL031735, AL035086, AL050307, AC006065, AC010077, AC007395, Z83845, AC007216, AL008719, AL022165, AC007666, AC008040, AC002314, AC005274, AL031602, Z94056, Z98884, AC005529, AC004832, AL022237, Z82206, AL031291, AL049874, U07561, AC005488, AB003151, AC005899, AC005914, AF207550, AL109963, AL031848, AC004895, AL049757, AL109627, AC004526, Z82178, AC005081, AL031657, AC006211, AC002558, AP000042, AP000110, AC007129, AC007325, AL133238, U95742, AL022320, AL132777, AC005037, AL031673, AC004814, AC000035, AC005682, AL050321, AL121653, AL022316, AC004655, AC006023, AC007938, AC004851, AC020663, AC006509, L47234, AC002390, AL109623, AC006241, AL049793, AL133244, AL022336, AF134726, AL031985, AL022322, Z82215, AC006121, AC004854, AC004893, AP000032, AC006040, AC006057, AL035422, AP000251,
HCWKR14	9093	658421	1 - 413	15 - 427	

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HCWKQ09	9094	625546	1 - 448	15 - 462		AI804923, N70274, AI992261, AW140138, AA934526, AI793312, W88993, and AI077351.
HCWKI72	9095	760628	1 - 188	15 - 202		AW090499, and H43869.
HCWKD85	9096	783545	1 - 288	15 - 302		W45058.
HCWKC61	9097	741803	1 - 640	15 - 654		R00030, W88606, AA777327, W88525, AI033236, and R00122.
HCWHN53	9098	728248	1 - 332	15 - 346		AA148646.
HCWHF76	9099	838528	1 - 683	15 - 697		AI963720, AA490183, AL046409, AW406755, AI431303, AI284640, F36273, AI345654, AA581903, AW193265, AI754955, AW072923, AW274349, AL119691, AI334443, AI350211, AA525824, AI270117, AW303196, AI613280, AA610491, AW276827, AL043719, AW301350, AW419262, AI281881, AI679782, AW438643, AI561060, AW327868, AI801591, AW088846, AI246119, AW270270, AA491814, AI344844, AW029038, AI754253, AW276435, AI345681, AI345675, AI200051, AI341664, AI619997, AW238278, AI138455, AW072587, AI085719, AI696793, AW265009, AI061334, AI289067, AI471481, AA720702, AI357288, AI379719, AI375710, AI792287, AI053672, AA613345, AW162049, AI962050, AI037683, AI801600, AI929531, AL044940, AI358229, AA713815, AW104000, AI471543, AW276817, AI799642, AI860020, AA469451, AI355206, AW408717, AW193432, AW407578, AI669453, AL041690, AI688846, AI339850, AA521399, AA521323, AI754658, AL046205, AI761471, AW406162, AA806796, AI537955, AI110770, AI365988, AA669840, AI589230, AL042420, AL120687, AI133164, AW265393, AW404653, AW166815, AA229814, AW088202, AI298710, AI148277, AI124759, AA491284, AL048925, AA630362, AW304584, AI904894, AI633025, AI635818, AI708009, R88888, AA569471, AI610159, AA525190, N48230, AL138265, AI654588, AA631507, AI473943, AI312309, AI345518, AW162489, AW167372, AL038785, AW023270, AL079645, AI871722, AI336660, AA226153, AI890918, AA623002, AI133102, AI568678, AA714453, AA665330, AA577906, H71429, AW008952, W79504, AW071196, AW261871, AL046457, AI281697, AI143242, AW338086, AI928790, AI357551, AI499503, AI467919, AI434695, AW073470, AW103758, AI918421, AA126051, AA126035, AA502155, AA577959, AI564185, AL040382, AA780515, AW088616, AA513141, AI287651, AI471572, AI571512, AI251002, AW008317, AW339568, AI590958, AI749559, AI624142, AI049634, AW023672, AA493708, AI240168, AA482711, AI283911, AA587256, AI370878, AW162288, AA551552, AL041146, AW080134, AA526787, AW102955, AI564454, N27584, AA621858, AA493471, AI623720, AA877817, AL135405, AI654525, AA507547, AI287528, AI254615, AW276932, AW338500, R98967, AL046898, AA908687, AI886629, AA559290, AI434706, AC005488,

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HCWGY56	9100	732688	1 - 353	15 - 367	H60503, H73127, R87153, and H54125.
HCWGU65	9101	747198	1 - 648	15 - 662	
HCWGR02	9102	920121	1 - 449	15 - 463	T62926, AI565392, and T62778.
HCWGE86	9103	974476	1 - 556	15 - 570	
HCWGE85	9104	783528	1 - 346	15 - 360	AA001715, AA677924, AA633058, and AA730673.
HCWGA64	9105	746153	1 - 217	15 - 231	AI357815, N71226, AA829044, AA651632, AA630672, AA583394, AA602906, AA664900, AA502818, AI860587, H60971, AA535216, AA568754, AW020088, AA213959, H92527,

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HCWFV07	9106	953582	1 - 417	15 - 431		AI125400, AA884999, AF124523, and AF118808.
HCWFU40	9107	710419	1 - 516	15 - 530		AA194830, AI168347, AA878779, and AW193187.
HCWFEM44	9108	716726	1 - 591	15 - 605		R76265, R97725, AI741451, AI868531, R26030, H57394, R26000, AC004654, AC005260, AC005392, AC004784, AC005238, and AC005791.
HCWFK37	9109	800389	1 - 292	15 - 306		AA669155, AI891080, AC009044, AL035249, AC009247, AC004805, AC005399, AC005005, AC004928, AC004148, AC004858, AC005304, AL049636, AL121754, AC004743, AC004895, AL020997, U91326, AC002416, AC005003, AC007688, AC004821, AL021392, U91322, AC007774, AL031733, AC006211, AC005529, AC005484, AC005841, AL022238, AP000696, AL031283, AC005520, AC003101, AC007358, AC004129, AL133448, AC002544, AC005846, AC002301, AL109798, AF053356, AC006277, Z73417, AL049643, AL109839, AC004408, AC005837, AF207550, AC007308, AC005971, AC004983, AC004478, AC005358, AL049709, AP000326, AL022721, AC008134, AC005544, Z98884, Z83844, and AF001549.
HCWFI71	9110	489879	1 - 425	15 - 439		
HCWFE35	9111	722467	1 - 383	15 - 397		H95168, AW249352, AA479537, H17584, AA340567, AW161280, AA160751, AW162903, AA220220, AI929687, AI005164, W51926, AA130689, AA907575, N75168, AI676056, N29217, N26362, AI244335, AA833853, W58723, T11688, AI806567, T57726, AI017884, AW055105, AA836509, AI478719, AA431503, AI492277, AI735743, AI830776, AI582674, AF069762, AF188202, AF188203, AF188204, AF188201, AF169647, AF169648, and AF045528.
HCWFA63	9112	578898	1 - 349	15 - 363		AI890862, AC000025, AC007227, AC005529, AC005527, AD000092, AL049709, AC004491, AP000353, AL031295, AC002369, AC005531, D00591, AC007666, AC005736, AP000555, AC007308, AC004477, AC003684, AL080243, AC006449, AC004859, AC005913, AC007055, Z98884, AC006001, AC005513, AC000052, AF134726, AL023807, AC005291, AC004019, AL049830, AC003982, and Z93023.
HCWFA51	9113	584725	1 - 361	15 - 375		AA601216, AA603315, AA262273, AI904944, AA594018, AI565084, AA771892, W42587, AA745653, AA586433, W24312, AA558404, AA074942, AA828153, F35674, AA508069, AL037837, AA714729, AA584484, AA788951, AI018726, AW247389, AA314126, R56810, AA363003, AI049643, AA486877, AI284126, AA721530, H71678, AA721523, AA582350, H54252, AA526643, AA507993, H81732, H65213, AW088557, AA634926, H53284, N74566, AW243945, AA669560, F23307, N57674, AI039539, AA564256, AI884861, AA064978, AA678976, AI251576, AA642809, AI306232, AI620266, C06471, AI623715, AW274191, AA481765, H52397, AI583466, AI159799, AI276360, T69571, AI306717, AA678616, AI984168, AA029860, R33091, AA553579, AA018923, AA012829, AI252010, AI252880, N27615, AW188419, AA654482, AI583448, AA635413, AA321010, N54538, AA367014, AC007308, AC004531, AC005696, AL122020, AC008009, AL049709, AC007688, AL034423, AC000035, AC006430, AC002551, AC005072, AC008124, AC016027, AC008928, AC016830, AC000025,

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HCWFA35	9114	908820	1 - 352	15 - 366	
HCWFA27	9115	578899	1 - 337	15 - 351	AL022322, AC002045, AC002375, AF001549, AP000510, AC006480, AC004491, AC004150, AL133163, AC008372, AC006275, AL021155, AC002094, AC004985, AC006530, U91322, AC002400, AC005914, U91326, AC006163, and AP000032.
HCWFA03	9116	921938	1 - 367	15 - 381	AA191418, AW131043, AW020736, AL962030, AA515728, A1004591, AW020088, W39694, AA833896, AA833875, AA644090, AA578621, N22425, AA600202, AL566408, AA581247, AF001764, FI3808, AA452887, AI537397, AA559208, AI590906, AW068007, AW068008, AW067788, AA526326, T15454, AA449428, AI273847, AW192284, AA365190, T72218,



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HCWEW92	9117	573389	1 - 249	15 - 263	AI446336, AA302661, AA630845, AI915081, AA084609, AA487209, AA152398, AA298365, AW264901, AA599080, AI609972, AI620992, H84412, AA493840, H86221, AW081610, H79004, F02342, AA302978, AW151533, AA513983, AA053463, AA857812, AI288033, AI049630, AI002785, H54706, AI889995, AI537800, AA528503, AA947825, AA528574, AA565911, AI359200, AA586667, AI445373, AA584756, AI250552, AA244181, AA342238, AI678476,

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			1 - 309	15 - 323	AI872229, R92703, AI521019, AI668566, AA470933, AI733523, R54095, AC004230, AL022318, AC004020, Z81450, AC005202, AC004652, AL050318, AL008716, AC006064, AC002425, AL020997, AC002476, U85195, AJ003147, AC004771, AF053356, AL021453, AE000658, Z49236, AC008018, U35426, AL139054, AC005696, AC004678, AL109952, AF060568, AC005412, AL031597, AC006441, AC005305, AC000353, AL031848, AC006312, AC005089, Z93023, AC005740, AF091512, AL021394, AL050348, AP000962, AC005600, Z83844, U80017, AC006088, AL021578, AC005031, AL035405, AC006077, AC005620, AL031432, AF205588,

HCWES28	9119	685585	1 - 114	15 - 128	AC005081, AC007421, AC004675, U70065, AL031255, AC005520, AC006538, AC004009, AC005363, AL035684, Z81364, AC002504, AC004999, AC005837, AF088219, AP000693, AC000065, Z93930, AC006449, AC005476, AL132992, AL031587, AC004097, AC005747, and AC005618. AA025970, H57826, H99934, AA303007, T50624, AA719520, AA632744, AL042927, AL1791156, AL1866422, AA862218, AA017323, AA174016, AA330576, AA486896, AL035071, AL132987, AC004663, AP000347, AP000346, Z95152, AL035701, AC005323, AC006597, AC005280, AL031311, AC004929, AL022324, AC003667, AC006023, AC003080, AF134726, Z99570, AC006501, AC005207, AC002543, AL121748, AP000695, AC006084, Z97056, AC007283, AC004991, AC007057, AC006064, AF205588, AL031255, AC004019, AC002369, AC012330, AC007263, AC005257, AL021546, AP000550, AL035467, AP000356, AC008018, AC004811, AL078477, AC005089, AC003663, AP000503, AC004522, Z83844, AC002425, AC007878, AC004496, AC007021, AC005829, AL031685, AC005041, AC007055, AC006080, AC005399, AC007536, AL034548, AC006449, AC003041, AC005755, AC005015, and U52112. AL284640, AL046409, AL270117, AW274346, AL583283, AW193265, AA490183, AL038705, AL13280, AL037683, AA584167, AA581123, AL969436, AL744826, AL305766, AA587604, AL345654, AL281881, AL801482, AL350211, AL696962, AL732764, AA584201, AW021583, AL732865, AW407578, AA720702, AA602047, AW265385, AL860013, AW245747, AL559705, AA579366, AW073470, AL754336, AL375542, AA470969, AA634889, AL192631, AW408717, AA722372, AL798473, AL039932, AA682912, AW062724, AA610493, AL282511, AA551503, AW406755, AL538852, AL046205, AA502720, AL751216, AA503600, AA658362, AL580250, AW087356, AA610688, AL307608, AL042853, AL134972, AL73943, AA482711, AW419262, AW020340, AW169151, AW438643, AA483223, AL133164, T41259, AL925579, AA846935, AL110770, AL431303, AW303196, AW274349, AA126035, AA515829, AL358229, AA580808, AL962050, F36273, AL254316, AA533303, AA351056, AA649642, AW408047, AL149478, AW301350, AW276827, AW327868, AA610783, AL048925, AL625244, AA578997, AA632755, AW162049, AL045053, AL929531, AL339850, AW103758, AA662225, AA483771, AW249224, AL564496, AL365988, AW029038, N66026, AA573543, AA834707, AW075511, AW261871, AA531372, AL247199, AL754658, AA826303, AL357823, AA749235, AL744188, AL358571, AL824562, AA577906, AL873852, AA478355, AA829223, AW273218, AL345157, AA568778, AW302903, AA908468, AL568678, AL338350, AW264957, AA808877, AL570261, AA492166, AA856969, AL177061, AL634384, AW166815, AL583612, AL963720, AA491831, AA737318, AA548689, AL471543, AL041690, AA631507, AA837084, AW270343, AA713815, H71429, AL567674, AL291588, AA639326, AL120269, AL865905, AL119984, AA847952, AL038072, AL654525, AA679514, AA522942, AW148792, AA569471, AL801591, AA661921, D83989, U57009, I51997, X55925, U18391, X55927, U18394, U18395, X54176, X53550, U57005, X54179, X54181, U57008, X54178, U18398, X55929, X55933, AF077058, U67801, U57006, X75335,
HCWER13	9120	586984	1 - 262	15 - 276	

					U04355, U18399, X54180, X55924, U18393, L47228, U18388, U67831, U67832, X54175, U18387, X55931, X55923, X55922, U18390, Z22650, AF015147, X55932, M13254, M37551, AF015151, AF015156, U67829, AF015149, AF015167, Z79422, AP000558, A39972, AF015160, AF015166, AC005280, U18392, U67229, X55926, U67221, AP001172, AF109907, AC009516, AC004858, U67231, AL021977, L35531, AL033521, AP000557, AC004712, AC002565, Z49816, AC002452, AL035695, AL121603, AL031123, U67217, AL021366, AC006511, X78901, AC003966, AF042090, AC004876, Z82190, AL050097, AL121825, X88791, AL008629, L49046, AC005484, X54177, X53549, AC006213, AL109984, AL096791, AF088219, AF015158, U67827, L78810, AC005224, AL117694, AL030997, AL031005, U18396, AC006071, U67825, AC008039, AC004675, U11309, S43650, AC009411, AC004024, AC006466, AL050332, AC004383, AP000555, AL008709, AL049759, AC004263, S56773, AB023049, U57007, AP000020, AL022163, X55930, AC007848, AC002545, AL022322, AL049569, AL121653, U67227, L81648, AC006026, AL031594, AP000345, AC007324, AC010175, AC006449, AC006001, AC008101, AC007193, AP000556, AC006011, AL023882, AC006459, AC005081, AL121934, AF010399, AL035071, U18389, AC004526, AC005231, AC002470, AC003111, AC008079, AC004972, Z99716, AC005520, AC004592, AC004259, AL080250, AC005041, U90546, Z54146, AC003684, AC004600, AL035397, Z83826, U67826, AL031577, AC002476, AC004814, U14701, U14695, U14694, AC003101, AC002300, AL035450, AL031733, Z81369, AJ251029, AC004453, AL121652, AF190465, AC004686, Z98200, AC006080, AC008012, AC008115, AF045555, AC005165, U67828, AC006077, AC004217, AC006479, AC006292, AC002347, Z95114, Z69666, AC007590, AC000066, AL008728, AF090940, AL022323, AL022302, AD000092, AC006277, AF029308, AC005387, AC005771, Z98046, AC008080, AP000359, AL121754, AC006430, L78833, AC003074, AC002549, AP000228, AC004895, AL049830, AF002996, AL079295, AC004832, AC005015, Z93016, AC005253, AL133448, AC005696, AL021393, AL049594, AC002350, AP000552, AF146367, AL034561, AC006464, AP000017, AL022328, AC004158, AC006111, AC004652, AC004988, Z99129, AL050347, AL008725, AC002542, AP000140, AC005529, AP000246, AC006333, AC005209, AC008126, and AL031662.
HCWEQ61	9121	741989	1 - 473	15 - 487	AA010470, R10043, R53395, AA643595, AW172511, AL436714, AL362495, AW339340, AI858856, AW248102, and AC004230.
HCWEH95	9122	795046	1 - 263	15 - 277	N58676, AA317546, AW197056, AA782338, H53508, F02188, AA074252, AL118925, W23432, AA126252, AL275982, R89560, AA612578, H87756, AA297698, AA578621, T63057, AA736480, AA730035, AA237098, AI932900, AA665475, AA747757, AI890327, AI270177, AW022891, F31575, AA613923, T90237, AA678950, AA825827, AA086360, AW407632, R67086, AI281770, AA653713, AI132915, AA604515, AA468056, AI679390, AI679898, AA551204, AI744830, AA467938, AA071194, AI912401, AW069527, AI160682, AA002262, W60406, AI683026, AA565691, AA564925, AA302763, D83882, AI358712, AL031846, AC002511, AC005074, AC005089, AC008249, U91319, AC003091, AL031657, AC007225, Z85987, AC007226,

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HCWDO74	9123	576471	1 - 194	15 - 208	AL023882, AC005837, Z99716, AC005046, and AC005277.
HCWDO26	9124	576470	1 - 204	15 - 218	AA363027, AW087537, AA629731, AI309059, AL031281, AC004382, AL031984, L34635, AL096677, AC004841, Z69733, AC003982, AC004448, AC005345, AC000393, AL049540, AC008044, AL049709, AL121782, AC006347, AL008726, AC008545, AC005800, AF111169, AL133500, U91326, and AC002544.
HCWDJ81	9125	514607	1 - 387	15 - 401	AA769123, AA831715, and W92553.
HCWCR40	9126	711507	1 - 425	15 - 439	AA255688, N98246, N63895, AA262567, AW166611, AW131457, AI620666, AP000240, X59875, AC005793, AL122003, AL109627, AC004859, AC005008, AC004854, AC007325, AC002310, AP000355, AL034410, AC005924, AC000061, AC004508, AL033392, AC005574, AC004383, AL031427, AC004755, AC003957, AC007981, AC005014, AL121603, AL033397, AC010209, AP000552, AC005089, AP000201, AL034374, AL021453, AC002299, AL035587, AP000097, AC008018, AC008103, AC003664, AC005776, AC002091, AC005562, AL034420, AC004056, AL031186, AC004913, AF026069, AP000550, AC004686, AC006511, AL024498, AF207550, AC005971, AC007227, AL031003, L05367, U62317, AC005255, AL133353,
HCWCN11	9127	849959	1 - 882	15 - 896	

HCWCM08	9128	849958	1 - 328			AC004975, AL079339, AC016831, AC006211, AC007324, AL022316, and AP000703.
HCWCL46	9129	719244	1 - 486		15 - 342	
HCWCJ16	9130	411336	1 - 452		15 - 500	AA235285, and AA811938.
HCWCI85	9131	840121	1 - 376		15 - 466	
HCWCH85	9132	753191	1 - 390		15 - 390	
					15 - 404	AA812111, AW023111, AA502532, AA487272, AW265342, R95840, AW304580, AA938390, A1358712, A1290107, AA182731, H71678, F24745, AA502207, A1792439, T07922, AA501461, AA601278, A1610468, AA604843, AA070899, AL045476, AW237905, AA644090, A1635440, R66166, AW188742, AA515723, AW408756, N23913, AW243831, AA284247, A1270177, AA651632, A1279417, AA828834, AW022934, AL044340, AA297145, AW166920, AA356376, AA604865, A1687343, A1745116, AW021161, A1096738, AA683069, R32162, AL049830, AC007386, AL031281, AC006014, AC004253, AC004890, AL009181, AC004520, U95090, U91326, AL139054, U67813, AC005488, AC005859, Z49866, AC004841, AC005581, AC005031, AL049569, AL035405, AC020663, AC007226, AC007536, AL049745, AL096702, AC005057, AL022476, AC002544, U80017, AC004605, AC003982, AC005911, AC006449, AL024498, AC006480, AP000053, AC005796, AC005730, Z93020, AC011422, AC005696, AC003101, AC004000, AL080243, Z83840, AL096801, AL031283, Z97630, AC005229, AC005841, AC006441, AC009247, AL132987, AC005187, AC005399, AC005839, U91318, AC002347, AC007151, AC003107, AP000558, AL133245, AL050321, AC008044, AL035422, U07561, AL096774, AF031078, AC005081, AC007216, AC004858, AL022165, AC019014, AL031311, AC007225, AC006141, AC006511, AF030876, AC005280, Z99716, AC006077, AC005736, AC009516, AL034417, AC004622, Z54334, AL023880, AP000344, Z96074, Z98742, U96629, AC005074, AC004531, AC005513, AP000459, AJ229041, Z93023, AC005722, AL035457, AC002365, AC002425, U15177, AP000692, AJ003147, AF196779, AC005846, AL031432, AL133246, AC005726, AL035555, AC003681, AC005527, AF111168, AL031295, Z85996, AC004893, AC005320, AC002404, AL035071, AC005914, AC004967, AC004659, AF051976, AC005256, Z95152, AC005531, AL022313, AC005632, AC005189, AC005500, AL031003, AL031680, AF006501, AC005741, AC004955, U95742, AC005690, AL121658, AF001552, AL096775, Z95114, AL022336, AC002039, AC005821, AL021707, AC005899, AC005291, AL133243, AC005971, U47924, AC004106, AC003029, AC005902, Z84474, U62293, AL121603, AC004815, AC005800, AL034553, AF117829, AF207550, AC002349, AC006312, AC005520, AL049872, AL049829, Z93244, AC002477, AC005041, AL078476, AC006013, AL022315, AC004650, AC004854, AC000085, AC002094, Z93017, AC005015, AC009542, AL079342, AC007326, AC008125, U67812, AL050317, AC002302, AC004797, U89337, AC006120, AL049869, AF073485, AC002312, AP000557, AC004476, AP000117, AC005837, AC004131, AC004922, AP000359, AL035659, AL031666, AC004448, AL031587, AC005358, AB023050, AL050318, AC000052, AC003110, AL096701, AC006088, AC005231, AP001051, Z85987,

HCWCH11	9133	967666	1 - 310	15 - 324	AC006001, AL049757, AC007242, Z83846, AC005529, AL031659, AC005940, AC002992, AC006512, AC005182, AC006057, AC006530, AC003689, AC007114, AL035090, U82668, AC004985, AC005004, AC002565, Z82173, AC004765, AC004408, AC007160, and AC002310.
	9134	954100	1 - 470	15 - 484	AL021905, D44646, AW263123, T93266, and AA953383.
HCWBM07					H56993, H70011, R12267, H57000, H69555, H56910, R11661, R16743, R09996, T77907, T77822, H56905, Z56468, and Z61918.
HCWAN45	9135	728385	1 - 989	15 - 1003	AC006504.
HCWAI53	9136	586997	1 - 288	15 - 302	AA635368, AA381762, AL039309, F31811, AA381747, AA278496, AP000553, AL096791, Z94801, AC004263, AP000255, AC005387, AC005971, AL133245, AL109628, AP000135, M87909, Z98051, AC004821, AP000031, AC004257, AL132712, AL035405, AC004858, AC002400, AP000048, AC007308, AC007285, AC002470, AL080243, AL022163, AC005288, AC004596, AC002985, AL021578, Z97876, AC009516, AL035086, AL035413, AC006271, AL034420, U62293, AL034379, AF109907, AP000211, AP000133, AC005412, AC005808, AL049569, AL121603, AC004216, AC004222, AC006449, AC004854, AB015355, AL031846, AL020995, AL121655, AJ003147, AC006468, AC003104, AC005197, AF196969, AC007842, AC020663, AF111168, AC006111, AC004526, AC002369, AC005562, AL022323, AC006121, AL034429, AC006006, AF205588, AC005796, Z69705, AC000035, AC002119, AC009247, AC004929, L78833, AC005180, Z85986, AC007226, AL121825, AL033376, AL009181, Z69653, AL022313, AC007263, AC004754, AC007774, U91326, AP000505, AC005624, AC004983, Z83844, AC005701, AL031282, AC007225, AC005520, AP000503, AL008719, AF134726, U73636, AL139054, AC004000, AL023513, AC000003, AC005015, AL031427, AC005225, AC005529, Z82244, AC004874, AL031432, AC002310, AF001549, AC004967, AC004019, AC005102, AL031670, AP000512, U52112, AP000032, AC005222, AC005839, AL031985, AC005914, AC006077, AC004638, AC004478, AC005207, Z97054, AC002425, AC006285, U29953, AC005081, AL022336, AC005619, AC004814, AC000025, AC006210, AC005940, AL020997, U57007, AL031178, AL008735, AD000092, AL035448, AC004230, AC016025, AC000075, AC012384, AP000030, Z83840, Z92542, AC004228, AC006441, AC006026, AC005736, AC004690, AC004552, AF045555, AB023051, AC006505, AL022721, AC002477, AL121658, AL049694, AC006312, AL133448, AL034423, AB001523, AL031774, AP000023, AC005484, AC000052, AC006597, AF129756, AC005907, AC004991, AC005057, AC004253, Z98048, AC006001, AL049539, AC005694, AC007406, U95742, D87675, AC004531, AC004678, AC006581, AC007684, AC004771, Z93930, AC005089, AL050332, AL121653, AL034417, AL021154, AL078581, AC006023, AC005841, and AL022476.
HCWAB85	9137	783392	1 - 299	15 - 313	AW268090, AA579278, AL031759, AA525156, AL828721, AA847341, H79277, AL570067, AL567676, AA507623, AA460714, M77964, AA635150, AA309287, AA364147, AL245693, AL308529, AA468923, AL174827, AA878140, AA467740, H47461, AW028376, AW023975, AL003474, AA515727, AL370470, AA664963, AA661590, AW188742, H62123, AA578711,

					<p>H81012, AL376687, R79396, AA632869, AW303052, AA873661, AW020612, AI813920, AI003391, AI343808, AI884404, AA419107, AA419014, AW169469, AA086318, AA715173, AA715075, AW341878, AI251024, AI065031, AI805373, F24745, AA808842, AI049680, AA527633, AA809104, AI821945, AI536625, AA636077, T94116, AI923314, AA728954, AA152398, H57741, AJ246003, Z84474, AB001523, AL031255, AL121658, AC006530, Z98200, AC004895, AF023268, AC004263, AL022336, AC005971, AJ011930, AC004383, AC002476, AC002996, AC005829, AC006077, AL024498, L44140, U91326, U52112, AC005666, Z93017, AL009179, AC007934, AL049839, AL049780, AC007055, AL035086, AL031295, AC004686, AC006277, AC005914, AC002464, AC002398, AC005531, M26434, AC004000, AL031311, AC002073, AC002544, AC007371, AP000555, U96629, AL02165, AL022313, AF205588, AL035659, AC006084, Z98946, AC006468, AC003006, AL035587, AC006946, AC005821, AC004967, AL031594, AL049569, AC005365, AC004668, AC006071, AC004703, AC005527, AC003093, AC005005, AL133163, AC006014, Z85986, AC006581, AL078460, AC006953, AL034421, AL049743, AL022328, Z83846, AF165926, AL049759, AL033527, AL049694, AC004638, AC004783, AL080317, AB023048, AC004812, AC005488, AC002351, AJ006345, AC004814, Z83840, AC005340, AL031587, AC006449, AC004825, AC005598, AC004816, AL031589, AC005231, AC005519, AF001550, AC005296, AL050318, Z97056, AL049829, AC005625, AL035420, AL109758, AC005695, AC005516, AC005225, AL121653, AL049757, AL022721, AC005841, AF015720, AF053356, U07563, AC006241, AL035658, AC004025, AC004659, AJ003147, Z98884, AP000141, AL034423, AC005529, AL008582, AC006251, AC005412, AC005015, AC004671, AC002418, AC006538, AL031282, U91323, AC007066, AL080243, U91321, AC002400, AC006360, AC002331, AC007421, AC006312, AC005722, AP000514, U89337, AF109907, AP000704, AC006121, AC007324, AC005822, AC004386, AC006139, AC005089, AC005808, AL031670, AJ229041, AF196779, AC005071, Z82182, AC004883, AC005288, AC005251, AC005726, Z97634, AC002984, AC007536, AL133448, AP000510, AL133246, AC005099, AL031284, Z84480, Z83843, AC005837, AC004019, AL035079, AC000388, AC004760, AC005300, Z99127, AC003098, AC007051, AL031178, AC004974, AC001527, AC000082, AF064861, Z98044, AC002477, AC007919, AL109802, AC005049, AC002991, AC004695, Z74739, AL022726, AP000365, AC005081, AC005828, AP000248, AC008079, AC005484, AC006146, AC004975, AC005920, AC005618, AC003025, AC009399, AC004754, AP000547, AC008372, AC005730, AC009516, AL034549, AF045555, AC006317, AL031431, AC003036, AL035422, Z84486, AC000052, AC004912, AL049872, AF196972, AC008041, AC005202, AC006026, AC005911, AC007384, AP000280, AP000289, AF001549, AC007686, and AC004673.</p>
HCWAB72	9138	766288	1 - 198	15 - 212	<p>AA528462, AI698478, AI821420, AA568399, AA568400, AA568416, U85195, AE000658, AL049569, AB023049, AL022323, L48038, AC004865, AC005071, AC005940, AF205588, AC007242, AL021154, AC004686, AC000026, AC004802, AC004837, AC007160, AC002059,</p>



HCWAB49	9139	529659	1 - 51	15 - 65	and AL021546.
HCWAB37	9140	575491	1 - 250	15 - 264	AI053583, AW028950, AI082632, AI792539, AA320852, AA887406, AA373861, AA557493, AA513219, AA598605, AA551067, AI860423, AA513851, F30586, AI734837, AI452863, AI336771, AA715814, F35689, AA230025, AA468371, AA493789, AA224889, AA468505, AA378474, H86801, AL109984, AC005233, AC003684, AL031848, AC006450, AL031589, AC005089, AF024533, AC002395, AC007546, M63796, AC006948, AC005952, AF111168, AC000070, AC006388, AL022165, AL132987, AC007685, AL079340, AC005015, AC005527, AL008734, Z49236, AC005529, AC002544, AF205588, Z97055, AL031602, AC006512, AP000500, AC002565, AC005726, AC006023, AC005512, AC004858, AC005057, AC005914, AC002398, Z93244, AL009179, AL031431, AC005793, AC000024, AL021918, AL049776, D87011, U91326, AF109907, AL096766, AC005229, Z98036, Z86061, AC005924, AC005520, AC004838, AL049694, AC005088, AC004651, AC005519, AC005399, AL031291, Z98742, AL031670, AC002303, AC005940, AC005484, AC005828, AC004526, AL121754, AC002511, AL117337, AC004659, AL109628, AC002470, AL109627, AL049766, AL022302, AF092859, AC006146, AL022311, AL021940, Z86063, AC004851, U62293, AC006441, AC005071, AC005880, Z86090, AC007227, AC006453, AC006079, AC006111, AC005218, AC004811, AC003108, AC005231, AC006011, AB013924, AC003667, Z93930, AC009275, AL022316, AC005081, AC006952, AC005004, AC007386, AC006211, AF196972, AC004777, AC004804, AL080243, AC002287, AL035587, AL132712, AF111170, AC005808, AC005076, Z97054, AC004525, AC006468, AR004690, U07561, AC004849, AL109798, AC009516, AC007376, AL022320, AC004770, AC004491, AC004771, AC004228, AC005632, AL031284, AC004106, Z97630, AL034449, Z83846, AL133163, AC005730, Z75407, AC009247, AC004890, AL049869, AC007151, U02051, AC004893, AL121603, AC004148, AC004765, AC005666, AC004883, AC004854, AL021393, AP000113, AE000660, AP001046, AC005625, AC005874, AF134471, AL031767, AC004938, AL050307, AC007283, AC008115, AC007566, AL135960, AJ131016, AC004560, AL020997, AC006277, AL096761, AP000116, AC007030, AC008041, AC002997, AL031133, AL096791, AL022326, AJ251973, AL035659, AL022312, Z98052, AC011311, AL034549, U61981, AC005306, AC004929, AC005772, AC008056, AF001552, AC003041, AC009721, AC004805, AC005871, AC007999, U07563, AC003025, AC006597, AL022322, AL121653, AC004881, AL021155, AL024498, and U89335.
HCWAB36	9141	529660	1 - 230	15 - 244	
HCWAB35	9142	416968	1 - 209	15 - 223	R95748, AA721645, T58440, F35097, H85059, R70333, AA152404, AA358623, AA227482, AA347232, AA857381, AA908431, AA836548, R33941, AA508873, AA318064, AA187338, AA713715, H86105, AW272606, AA664163, AA608729, N24473, AI569363, AI754064, AA559219, AI086603, H86095, AI873627, R22196, AA503468, AI476372, AA533176, R79396, AA975997, AA481887, N58464, AI491765, AA648957, AC006449, AC005520, AP000496,

					<p>AC007099, Z95114, AC002477, AC007637, Z98742, AC005696, AL096678, Z98743, AL031657, AC006328, AC005193, AL022326, AC005225, AC007899, AL022315, AP000355, AJ246003, U07000, Z98946, AL031229, AC005089, AC005377, AC005971, AL022328, AC005625, AL121658, AL031258, AL022476, AC007845, Z98304, AL031428, AL022302, AC004408, AC004491, AC005969, AC006254, AL117258, AC006515, AL096774, AC016026, AC005519, AC005527, AL031597, AL121652, AP000212, AP000134, AP000354, AL031848, AL031668, AC004796, AL049694, AC006121, AC004605, Z84469, AC006277, AC008033, AL139054, AC004073, AC006454, AL050338, L41140, AP000502, AL109952, AC007666, AC007201, AP000688, U73023, AP000555, Z85996, Z84487, AC005747, AC005015, AP000010, AC005529, AF038458, AL031710, AC005412, AL137100, AC005257, AC007686, AL078477, M29929, AC005702, AC000159, AC004148, AL133245, AC004967, AL049653, Z93017, AF134726, AC006946, AC004383, AC004851, AC005081, AC006317, AC006070, AP000251, AC005829, Z86061, AC006480, AC004878, AL035460, AC006241, AC006039, AC002389, AC005071, AC004024, AC004644, AC004686, AC006285, AC010170, AL031177, AL133500, AC005911, AP000557, AL035684, AC007226, Z95115, AC016025, AC007225, AL022334, AC006111, AL031284, AC005067, AL031650, AC005620, AC004228, AC006312, AL049872, AL022163, Z83838, AC002369, U47924, AC005102, AC006512, AL121603, AL049748, AC006552, AC006538, AF109907, AL034429, AC004821, AL080243, AC005229, AC006511, AC005736, AC007051, AC003029, AC006443, AC005778, AC006130, AC002126, AC007919, AC005004, AP001052, AC007298, AL133512, AP000030, AL021917, AC006211, AC007314, AC004386, Z98749, AC005954, AC005484, AC004217, AB023051, Z99943, AL022314, AL031289, AC004400, AL121754, AC004675, AC005300, AC006061, AC004955, AC002565, AL031767, AC008055, AL023799, AC005399, AC007279, Z98941, AC006127, AC006966, AC007488, AC004858, AC003108, AC005921, AC005914, AL109798, AL031730, AB017567, U82668, AL135744, AC002470, AC005358, AL133238, AF205588, AL049758, AC005746, AC004447, Z68284, L05367, AC003036, AL031291, AF088219, AC007151, AC002996, AL022312, AP000257, AF187320, AF196779, AC002400, AL031673, AC009248, AL020997, AC005594, AC005180, AC006077, AL034423, AC006160, AL121653, Z69917, AC004883, AC005839, AC003013, AL122023, AC007011, and Z98885.</p>
HCWAB25	9143	575270	1 - 151	15 - 165	<p>AA630672, AW148507, H18914, AL047429, AA640410, AA640430, AA127426, AI292257, AI537772, AI249473, AA838190, AI054354, AA720732, AA961035, AI251576, AA664942, AA283730, AA128511, AI630176, AA954924, AI040051, AI306232, AA324242, AI434695, AA018207, AA714011, H25921, AW410354, AA101689, AI341571, AA629872, AA507612, AI583466, AW303096, AW268291, AW274191, AI802801, AA304049, AA507187, AI783549, AA749235, AA574442, AI085867, H29511, T06598, AA661499, AA583394, H15652, AA993818, AA610509, AA070345, AA535216, AL044940, AI002744, AA629540, AW439555, F15832, AI460009, AA554634, AP000012, AP000153, AC005578, U67820, AC000087, AC007536,</p>

					AC007225, AC005228, AC007731, AC005500, AL109627, AC005808, U72789, AC007421, AC004531, AC005796, M13792, Z97054, AC004237, AC004595, U18271, AL022322, AL096703, AF065396, AL117337, AF207550, AL110502, AF111168, AC004922, AL031774, AP000513, AC006121, AC005755, U62317, AF205588, AC003030, AL021407, Z69705, Z73417, AC004033, AC007539, AC005332, AL022312, AB000931, AF165926, Z82178, AC005781, AC005207, AF109907, M22403, AC005696, AC006277, AC004754, AB003151, AP000688, AC006065, AF010238, AL035462, AC005399, AF200465, AC002404, AC004707, AC003678, AC007993, AC004000, AC006353, AL022165, AC007406, AC005971, Z69925, AB026584, AC005619, AC006501, AF106202, Z86090, AC002549, AC004069, Z95116, AC006511, AC008044, AP000023, AL049766, Z99716, U40369, AC006530, AC005274, AL031228, AL031767, AL078472, AL024498, AL021978, AC006195, AL008708, AL080317, AC007774, AL133448, AL031283, AL049780, AC002219, AC007462, AC002477, AC005288, AC008014, U95742, AC006120, AC000081, U95740, AL034343, AC005231, Z85986, AC004051, AC006254, AC010722, AC005069, AC005756, AL022315, AL022328, AC005876, AB023049, AL022323, AC004686, AL049871, AC008072, AC009288, AC003681, AL035078, AP000156, AC005203, AF030453, AC004217, AL035398, AC005104, AJ010597, Z98946, U91326, AC003029, AP000014, AL031258, AL049839, AC002128, AC000041, AL031652, AC006509, AC002565, Z98884, AC005291, AL020997, AL022398, AC005088, AC005156, AC006965, AP000558, AC007216, AC004975, AB006903, AC005800, U16300, Z83845, AL034549, U73641, AC005527, AL008715, AC005209, AP000302, AL034553, AC005512, AL109628, AC010170, AL008582, Y14768, AC005903, AP000501, AL022336, Z85996, AC004478, AC005081, AC005330, AC004263, AL021977, U71218, AL035587, AF064861, U85195, Z84721, AL034418, M63543, AP001038, AC004024, AC004491, AP000505, AC008041, AF045555, AL117356, AC004465, AF024533, AC007676, AL022320, AC004878, AC005575, AC002312, and AL133245.
HCWAB23	9144	529664	1 - 291	15 - 305	AW136667.
HCVAC86	9145	785784	1 - 311	15 - 325	AA805869, AA665449, AL354847, AA621838, AA601376, AW021161, AA679532, AW022934, H73230, AL753488, AA443390, AC002477, AC004895, AD000092, AL021391, AC005529, AF195658, AC005015, D88268, AL023494, AL049780, U73647, AC005527, AL023807, AC005911, AL109758, U95742, AC005778, AP000512, AC008122, AL021878, AC006530, AC007226, AC004953, U07563, AL096701, AC016025, AJ003147, AD001502, AC005725, AP000514, AP000009, AL133245, AC004638, AC005288, AC006285, AL121603, AC005399, AC005920, AC005618, AC005971, AC004655, Z95114, AP000553, Z93017, AL050348, AC007666, AL050341, AL121754, AC005180, AL034374, AC003077, U91326, AC007298, AL049748, AC010170, AL031680, AL022316, Z93023, AC006359, AL049636, AL133448, AC004491, AC004253, AL021807, AL008726, AL050308, AC005520, AL133312, AC007216, AC005081, AL031681, AC006042, AC005209, AL008582, AC005531, AL034420, AF001549, AC004024, U95740, AC005011, AL080243, AC007546, AC006312, AC005207, AL096775,

					AL034379, AC006509, and AC007536.
HCVAC80	9146	529688	1 - 302	15 - 316	
HCVAC73	9147	529687	1 - 352	15 - 366	AA935456, AW004884, AW338179, AA223174, AI917134, H82265, AL049697, AC004000, AC005971, L78810, Z84480, AC002550, AC008372, AC005071, AP000500, and AL022336.
HCVAC72	9148	529693	1 - 247	15 - 261	AL008583.
HCVAC70	9149	507284	1 - 801	15 - 815	AA196390, AA196468, AA507837, AI537538, AA845293, AI051037, AI500454, AL038936, F27015, AI446601, F23315, AA772016, AI982634, AI954525, AI744949, AI708005, AA064938, AA229444, AW157005, AC001228, AC005996, AC005210, AC007436, AI003147, AC005399, AC005725, AC006486, AP000038, AP000106, AL031255, AC005324, AC005539, AL022163, AL049569, AL009179, AL031685, AL021938, AL121653, AC007792, AC012083, AC007066, AC006544, Z93017, AC005412, AL035587, AL008715, AC007344, AC002369, AC003029, AC005536, AP000210, AP000132, AL035443, AL133245, AC005531, AC005914, AC004087, AL033392, AL031774, AL031846, AC004000, AL096767, AF091512, AL031055, AC006111, AC005722, Z95116, Z74739, AL049829, AC004209, AL109628, AL096701, U53930, AC003954, AC005696, AC005529, AC008033, AL034417, AC004019, AL034420, AC020663, AC003964, AC004918, AC002994, AC000052, AC005988, AC005089, AC004922, AP001042, AC002996, AC005081, AC005911, AL132712, AC005823, AP000248, AF205588, AL109984, AP000045, AC004921, AC006063, AC004794, AP000503, AC007899, AC005237, AC000003, AL133246, AC004652, AC005520, AC005822, AF134726, AC004996, AC005763, AC000353, AC000512, AP000556, U85196, AC004797, and AC005406.
HCVAC58	9150	575510	1 - 337	15 - 351	AA292581, AA478127, AA978079, AA504702, W31736, AA636102, AA075369, AI927261, AA678950, AA298192, N22153, AW407632, AW073498, AI929410, AI753672, AA469441, AI750950, AA745302, AW057873, AA578621, AA847427, AA847508, AA662615, T03678, AI921619, Z98474, AA708651, R17935, AA076130, AA743299, N55076, H65911, AA467774, AA196412, Z98475, AI932871, AA834686, AA491985, AA748102, AI799421, AA282951, T59438, AA250776, AA856817, R48980, AI348467, AA302763, AA115865, AA488687, AA363957, N30016, AI569700, AA507993, AA524821, AI924954, AI908424, T86603, R53995, AI251024, AA065155, AA247477, AI453160, AI564294, AC007671, D83737, AC006962, AC006057, AC003013, Z96776, AC004611, Z99127, AC005663, AF155238, Z83840, AL049709, AC005664, U82671, AC007358, AL035405, AC006547, AL031659, AL121757, AC004825, Z79998, M33132, AC004185, AC006047, AL078611, AC000091, AC004656, AL049612, AC004992, AC004100, AP000509, Z98036, AC005552, AC006064, AC005081, AC002365, AC009294, D84394, Z69366, AP000228, AP000140, AP000088, AC006479, AF147446, AC005775, AC004466, AD000092, AF078847, AL133245, Z80999, AC005765, AC004257, AL031186, Z82243, AL049714, AL031732, AL021453, AL049698, AC007199, AL050321, AC002119, AL049843, AC003025, AL031276, AL031685, AL031291, AC003982, AL034402, AC004518, AC004876, AC007283, AF165138, Z95115, AC004540, Z94277, AC004967.

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HCVAC47	9151	861969	1 - 326	15 - 340	AW138257, and R52839.
HCVAC45	9152	529691	1 - 275	15 - 289	AW364634, AA158320, AL046752, AF006515, and U91543.
HCVAC38	9153	529692	1 - 307	15 - 321	
HCVAC33	9154	529694	1 - 318	15 - 332	
HCVAC26	9155	529698	1 - 404	15 - 418	AI217108.
HCVAC21	9156	529695	1 - 209	15 - 223	
HCVAC19	9157	879694	1 - 319	15 - 333	
HCUIO06	9158	934889	1 - 641	15 - 655	
HCUIM28	9159	849998	1 - 417	15 - 431	AI004352, and AI249075.
HCUIK74	9160	765645	1 - 723	15 - 737	W40368, and N93875.
HCUHY13	9161	657297	1 - 374	15 - 388	T47291, and AI821037.
HCUHY10	9162	964727	1 - 410	15 - 424	H94965, and AL031295.
HCUHU61	9163	850008	1 - 381	15 - 395	AI002934, and AC007377.
HCUHU54	9164	730739	1 - 355	15 - 369	R82557.
HCUHT92	9165	792756	1 - 404	15 - 418	R06688, AF017104, and AC016831.
HCUHT74	9166	765641	1 - 313	15 - 327	AA640094, AW188559, AW317075, AW238253, Z98885, Z83844, AC007686, AL008730, AP000501, Z95114, AF207550, AC004623, AC005089, AC005821, AC007773, AP000343, AL035461, AF001550, AP000556, AL022328, AL078611, AC005988, AF053356, Z97054, AP001067, AC009044, AC005921, AC005288, AC009336, AL031228, AP000354, AC007160, AC002477, AC002314, AL121915, AL121653, AC006449, AC009516, AC005519, AC005914, AL049712, AC005015, U96629, AL050318, U85195, AL035681, AE000658, AC005776, AL121603, U91321, AC007216, AC005755, AC005808, AL034421, AC008372, AL049553, AC005409, AC004000, AL049757, AC004084, AC003007, AC020663, Z99716, AC005488, AC005829, AP000553, AC005480, AL031670, AC007540, AC005099, U95742, Z84572, AL031685, AL031281, AP000355, AC005632, AC005523, AL034417, AF001549, AL049872,

HCUHT37	9167	575794	1 - 236	15 - 250	AL133163, AC004560, Z98884, AL031311, AL096791, AC006241, AF196779, AL024498, AL022721, AC002301, Z93017, AC005102, AC002059, AL035684, AC007934, AC004821, AC008124, AP000688, Z84466, AF205588, AL020997, Z96074, AC005081, AP000031, AC012085, AC006480, AC005786, AC002985, AL117337, AD000092, AC006958, AL049839, AL035659, AC004832, and AC004985.
HCUHT26	9168	681874	1 - 105	15 - 119	
HCUHT13	9169	657295	1 - 230	15 - 244	AI890348, AI754955, AA318822, AL134330, AW303196, AW301350, AI284640, AW440976, AW236342, AW274349, AI084012, AI267847, AW129001, AI569202, AA171513, AA491762, AI334443, AI138455, AI133164, AI291124, AI291268, AI061313, AI537030, AI144055, AL041690, AI370475, AI110770, W60516, F29989, AI610920, AL119691, AW301818, AI016000, AA601680, AI565245, AW440836, AL039958, AA932012, AI904894, AI053429, AI205126, AA557325, AL042756, AW272758, AA599141, AI133262, AA626678, AL037554, AA515224, AI054246, AI820539, AL041368, AA826303, AA569187, AA366035, AA826032, AA587604, AA569193, AI358229, AI345695, F19258, AW086257, AW406755, AW268300, M62249, AI299050, AI365988, AA558697, AA993198, AL120674, AI282336, AI053816, AA985357, AW406447, AW339687, AI307426, AL044940, AA581903, AI635272, AI049722, AA557879, AW074398, AA229785, AA743972, AI133636, AI281903, AW403720, AW196798, AA654968, N71724, AI251002, AW008212, T06828, AL120976, AI138265, AW361583, AI474085, H64777, AI433187, AI648558, AI962050, AA862173, AA639270, AA602069, AA501614, AI537556, AA340003, AA661948, AA916039, AI580652, AI859834, AI890923, AW440633, AI679782, AW249470, AI654529, AL118947, T39598, AW419262, AA503258, AI339850, H59023, AA665757, AA747480, AL040130, AA654627, AA515051, AW029038, AI929531, AA584145, AA179147, AA128592, AW193295, AI951436, F36273, AW166815, AI537185, AI830390, AI821356, AI246331, AA077223, AA488395, AI818620, AI053672, AW162049, AI654659, AA570416, AA308806, AI053469, AA663482, N27351, AI053489, AI254798, AI912322, AI754253, AW089789, AI921296, F33121, AA299115, AL040913, AA747375, AI287284, AI625244, AI917271, AA663306, AA317170, AA932099, H57849, AI471481, AA284179, AA665330, AA713815, AW410116, AI076616, AC004991, AF152365, AL031313, AC004695, AC007773, AC004990, AC003009, E01888, E02193, AF015152, L29074, AL117256, AC002545, AF178081, AC004743, AC005072, AF128525, AC005031, AC005288, AC003030, AC005520, AC004595, AC004913, AF129756, AC002456, U80017, S75201, M19045, Z93783, U91319, AC006130, M37551, X14008, AF006752, AL110150, AC006222, AP000251, AC008125, L35531, Y14768, U91327, AC006539, AC008122, AC006157, AC005165, AP000272, AC004859, A39972, AP000128, AP000206, AP000505, AC002077, U07562, AJ003147, AC006312, Z83840, AC004491, U73024, AC006362, AL049643, AP000030, AL031904, AL035699, U57009, AC005035, AP000245, AL031643, AC006581, AP000274, AC006597, AL080278, U67208,

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HCUHT03	9170	924494	1 - 540	15 - 554	H55902, H61877, AA978266, AC005049, AC004143, AC007055, AP000553, AL049780, and AC003037.
HCUHS21	9171	670988	1 - 488	15 - 502	T83209, and AL031985.
HCUHO27	9172	690027	1 - 485	15 - 499	AW182457, AI922795, AA441989, AA974771, AA031704, AA976534, AA152220, AA045294, AA731356, AW292805, AW148422, AA810540, AI800594, AI305839, AI458862, AW052091, AI824266, AI302809, AA716336, AA448335, AI278475, AI769897, AA461046, AI307309, AA974453, AI474422, AA449267, AA058688, AW195361, AI735273, AI691016, AW055187, AI740946, AA160279, AI200257, AW272744, AA099553, AI597746, AI239461, AI199994, H93009, AW057512, AA088175, AI128201, H64964, AI824017, AI699923, AA045521, AI278932, AA582895, AA709030, AI361585, AI261533, AI373386, AI263085, AI671224, AI300367, R97096, AI628787, AW271301, AI149430, AA040431, AI707638, AI161128, AI091306, AA035209, AI758904, AI418284, AA411404, AA576365, N59386, AI741604, AI880867, F20467, H13276, AA502528, T96890, T97469, AA713812, AI933321, N47960, AA736644, AA502505, N49171, and AA502417.
HCUHO13	9173	879921	1 - 1057	15 - 1071	AC003071, AC004462, L77570, AL049795, AC004508, AC006543, AC003043, AC008115, and AC006544.
HCUHK11	9174	967142	1 - 423	15 - 437	AI207952, AA653238, AC003119, and U91325.

HCUHH95	9175	941943	1 - 2159	15 - 2173	
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HCUHH04	9176	927500	1 - 617	15 - 631		
HCUHG67	9177	751673	1 - 746	15 - 760		AA234116, AW206772, AA234502, AW070295, AI274150, AA988179, AA729222, AA935521, AI382892, AA760987, AA989246, Z25141, AA728768, and AA812549.
HCUGT86	9178	784694	1 - 308	15 - 322		AI073478, AI247707, H54558, AI475033, AI084526, and AA861990.
HCUGS67	9179	751669	1 - 436	15 - 450		AA056567.
HCUGO07	9180	953412	1 - 305	15 - 319		AI719906, AA640632, and AI961282.
HCUGN19	9181	716989	1 - 584	15 - 598		R83518, H01355, R83503, AA204689, AI990886, AI660160, H45024, AI300806, AI969915, AI927423, AI457940, AI744631, AI928256, AI380503, AI867197, AW237763, AI800708, AI588959, AI765531, AW300271, AI830241, AI762594, AA828477, AW058189, AI871379, AI740633, AW301155, AA937166, AW316942, H44971, AA804639, AA535256, AW071230, R31122, R65687, H01309, H28671, AI829069, AA767789, AA953355, AW138552, AI870155, AI092045, and AA207090.
HCUGM93	9182	792329	1 - 313	15 - 327		N71632, AA826313, and AL034553.
HCUGM64	9183	745853	1 - 316	15 - 330		AA027349.
HCUGL20	9184	668913	1 - 445	15 - 459		R93212.
HCUGL01	9185	916350	1 - 150	15 - 164		AA835450, and AC006947.
HCUGK86	9186	785517	1 - 363	15 - 377		N88518, AA095359, AA096066, N84718, N83993, AA247827, N84048, N87989, N83168, AA247964, N84828, AF039698, U48696, and S78798.
HCUGK85	9187	783521	1 - 317	15 - 331		W92485, R92971, AA715876, AA063420, AP000098, AC005089, Z83846, AF001549, AD001527, AC005632, AL133163, AC016830, AC003982, AC003663, AC003072, AC005736, AC005291, AL021917, AC016027, AC005529, AC005225, AC004821, AC004890, AL035405, AL121653, AP000501, AL031295, AL031594, AF047825, AP000211, AC004797, AC004806, AC007308, Z93020, AL022721, AL096703, AC003043, AL031588, Z98742, AC005527, AC004491, AC005412, AC007421, AC005722, AC007637, AL031733, AL049869, AC005921, AL139054, AP000240, AC004019, AL035587, AC008101, AL021707, Z99716, AC006285, AC006480, AC003003, AL133245, AL035681, AL035665, AL117352, AL031281, AC005484, AC006115, AC008372, AC005520, AC005317, AC005519, AC004033, AC007686, AC005828, AC007227, and Z74739.
HCUGK78	9188	773601	1 - 215	15 - 229		AA493894, AI566408, AI124664, AA581263, AW084246, AA706291, AL037771, AA601376, AI369580, R10475, AI064918, AA858372, AA372949, AI591375, AW339622, AA736695, F08248, AI053911, AL040054, AA618452, F35374, AA557579, AI821608, AA069473,

HCUK64	9189	746604	1 - 205	15 - 219																												AA610413, AA468244, AA601674, AI962030, AW082117, AA306460, AI635245, F18070, AA831916, AA654661, AA653672, AA55241, AW274078, AA225406, AA569219, AA721645, AA191418, F12561, AI554471, AW440305, AL138455, AL036334, AA225358, H61926, H29511, AI925579, AI343144, AI287706, H82679, AA502991, AI244127, F13808, AW272294, AA807845, AA579407, AL119737, AA663201, AI814739, AA610381, AI343143, AL031657, AL035071, Z84469, AC004678, AC005907, AC006537, AC005037, Z82203, AC004878, AL008629, AC007387, AF196779, AL022323, AL031229, AC005378, AL021155, U91323, AF001549, U62293, AL022238, AP000152, AL078581, AC005057, AC006132, AP000305, AC004814, AF129756, AC006312, AC005363, AL022165, AC005011, U80017, AL132987, AL135744, UI8271, AF124730, Z93023, AP000011, AC002990, AC005790, Z84480, AL022302, AC002565, AC005088, AC008115, AP000691, AL049692, AL035249, AF134726, AC004234, AC000066, AL022315, AL035659, Z98036, AC005360, AL133163, AC005071, AC005004, AC007226, AC006947, AL023879, AC004812, AP000047, AC007216, AC005086, AC005003, AC004876, AC005620, AC016025, AL022322, U95742, AL133448, AC006160, AL031228, AC005409, AC007546, AC007917, AC007390, AC005988, AL133371, AL031286, Z93017, U63721, AC002314, AJ010770, AC005513, AC002126, AC005231, AC005519, AC007685, AL035697, Z85986, AC000354, AL121655, AL049872, AC000353, AL035703, AC004686, AC005291, AL022313, AP000260, AC004584, AC003691, AC012085, AL0149776, AL022320, AF109907, AC006365, Z84487, AC005207, AL109627, AC006450, AC004509, AC006543, AL121754, AC006509, AL078463, AC005484, AC004702, X69951, AC006071, AL009181, AL021917, AC005531, AC004883, AL032822, AL080243, AC005078, AC008372, AC004787, AC002551, AC003029, AL049795, AC006285, M30688, AC006480, Z95114, AC004662, AC006111, AL031985, AC004156, AD001527, AC008055, AC005081, AC004643, AP000115, AC005091, AL049733, AL031055, AC006388, AC011311, Z82190, AC002984, L78833, AC005972, AC005619, AF200465, AC006449, AC007999, AL050318, AC005839, U95740, AC005288, AC005736, AC004765, AC004522, AC004087, U47924, AL021154, AF217403, AC005778, AC004913, AP000116, Z93244, AP000036, AC006985, AC002425, AL035079, AL096701, AL022326, Z69917, AC005899, AC005668, AC006544, AP000065, AL034379, AC006571, AC005486, AF111168, AL035683, AP000962, AP000310, AC007199, AC006511, AL022721, AL034429, AC005600, AC007536, AC006064, AC002082, AC005043, AC004848, Z95116, AC005940, AL021546, AL049694, AC004796, AL034420, AC002477, AL121595, AC004975, AL035420, Z93783, AC005914, AC006538, AC008067, AL096791, AL035405, AC006210, AC007688, AC006137, AC005751, AC005823, AL035089, AJ003147, AL022336, AP000563, U50537, AL031311, AC005512, AC007114, AC005015, AC004125, L30117, AC010206, AL049869, AC004547, AL031282, AC004966, U52112, AC007488, AC004560, AC004236, AC005933, AC005913, and AC004531.
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HCUGK54	9190	730709	1 - 118	15 - 132	AA484273, AA484304, AW338783, AA171478, H49471, AA650075, AF126483, AE000661, AP001052, Z84469, Z82248, AL035420, Y10826, AL132987, AC006111, AP000099, Z83822, AC002546, AP000036, Z82976, AC006026, AL080243, AL023575, AC003665, AC008040, Z68279, AF001549, AC002098, AC007685, AC002551, Z94044, AC005005, Z83838, AL021578, L44140, AC006344, AC003684, AP000260, and AC005273.
HCUGK51	9191	725013	1 - 307	15 - 321	AA65862, AI249473, AA629872, AW130335, AL047429, AI306232, AW274191, AA653854, AA831903, AI583466, AI251576, AI829831, AI911671, AI583252, AI188390, AA736557, AI307201, AI278678, AI570829, AI334818, AA872491, AA626432, AW084445, AW304580, AI635819, AI338386, AA613624, AA653139, AA224889, AA502991, AI890324, AI708009, AI358089, AA354822, N24133, AA715706, AI609972, AA814622, AA829036, AI612142, N33763, AA164684, AI623764, AA720732, AA776032, AW438539, AA167527, AA595661, F11718, N24793, U57009, U57005, U18398, AC004983, M87914, AL109798, S42653, U02532, AP000211, AP000133, AC020663, AF095901, Z82215, AC006285, AC005332, AC003041, AC005901, AJ003147, AC007731, AC006013, AC000070, AL109865, Z98051, AP000517, AC016025, AP000691, Z69706, AC005500, AC006077, AL031311, AC004702, AC007536, AC006509, AC006511, AL020993, AL109801, AL031295, AL049766, AC004491, AC006441, AB015355, AC005180, AC002352, AC007384, AC005914, AC002301, U50537, AC005231, U95742, AC004235, AC007216, AC002430, AC005696, AC007685, X53548, AC005225, M30688, AC005899, AF031078, Z82244, AP000555, AC004821, AC005387, AC007308, AC000052, AC005531, AC005067, AC003109, AC007136, AL035659, AC007066, Z97053, AC004000, AC005257, AL049872, AL035467, AC005190, AL023807, AC005399, Z82976, AC005726, AC005274, Z97876, AC005815, AC002425, AF053356, AL008721, AL035086, AL035450, AC006449, AC004020, D49558, AD000864, AJ011713, AP000432, AL031291, AL034429, AF015148, Z68756, AL022302, AF030876, AC002316, AC004234, Z82217, AC004583, AL035685, AL049758, AL031283, AL049576, AL096774, Z93020, U73024, AF001549, AP000558, U95740, AC005378, AC005355, AC005377, AC005746, AP000359, AL021453,

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HCUGK38	9192	706479	1 - 160	15 - 174	AA329625, AW270474, F03001, AP000355, AC008115, AF017104, Z84480, AC003025, AL049631, AC005531, AL109627, AC004228, AF139813, AC022517, AC005696, AC005412, U62293, U63721, AC002470, AC006088, AL110502, AL121653, AC004491, AC005065, AC006211, AC005911, AL035587, AP000045, AC002036, AC006571, AL133243, Z98742, AC002492, Z77249, AC005072, AF038458, AC005899, U91323, AL020993, AP000153, AP000032, Z85987, AC008040, AC005049, AL031432, AC006449, AC005602, AC004887, AL049793, AC002565, AP000356, AC004967, AL022313, AC003101, AF001548, AF053356, AC007130, AC003969, AC006529, and AC006515.
HCUGK25	9193	678130	1 - 152	15 - 166	AA661921, AL043289, AA401240, AL133297, AA613591, N71746, AA404287, AA482711, AL174766, AA063173, AW275510, AW301995, AW303002, AA834707, AA702729, AA747070, AL284640, H23653, AL345366, AL310873, AW163293, AL042753, F36306, T25806, AL036037, AW075511, H71429, AA129746, AW268757, AA101689, AL368745, AA493695, AW084466, AW021735, AL821494, AL038606, AL037683, AL064952, AA483929, AL349817, AL805363, AL963720, AA809479, AL135377, AW023990, AA455670, AL583283, AL270117, AA513893, AA127426, AA618452, AW268954, AW270343, AA493975, AL345157, AL138455, AA490183, AA299189, AA669155, AW021597, H42271, AA630672, AW021207, AA584805, AA602047, AL345827, AL818231, AA047715, AL254654, AA579179, AA847499, AL027459, AL821918, AL045808, AL046156, AA758366, AL687343, AL821881, AA984801, AA757775, AL046746, AC005740, AL022721, AB023798, Z94801, L34079, Z83844, A67988, AL133448, AL078581, AL035587, AC005778, AC007382, AC008044, AL121603, AL022329, AL096701, AC004030, AF111168, AJ010770, AC004195, AP001052, AC008080, L44140, AC005261, Z83845, AC002470, AF205588, AC005548, AL109758, AC004623, AC004883, D87008, AF114156, AF111167, X06123, AC006112, AF039906, AJ003147, AL021977, AC003957, AC007193, AC004881, AL021155, AC004865, AL135744, AC002070, AL049871, AL022323, AL031670, Z82198, AC005696, AL133241, AC002527, AC002425, AC005234, AC006466, D88268, X68090, AC005280, AL117355, AC006581, AL121654, AL008726, D83989, AC005164, AC002455, AC007308, AC005971, AL049552, AC000003, AL031295, AC020663, AF126531, AC004890, AC007051, AC005907, AL049825, AC009516, AC004150, AC002350, X61109, AC005776, AC003070, AC005567, AF129756, AB020865, U67229, AP000555, AC002073, AL033543,

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HCUGK18	9194	666454	1 - 285	15 - 299	Z82206.
HCUGK17	9195	424102	1 - 296	15 - 310	AA167506, AA745302, AC005102, AC004851, AC004491, AC006449, AL031848, Z98884, AC005005, AC005412, AL121754, and AL035458.
HCUGK14	9196	657539	1 - 269	15 - 283	AW044407.
HCUGK05	9197	932078	1 - 203	15 - 217	AW409621, AW409626, AC006123, AL022396, AC007536, AP000557, AC005736, AC003104, AC002132, AC004955, AL008582, AC004797, AP000556, AF006752, AC007386, AC005280, and Z82901.
HCUGI64	9198	746608	1 - 347	15 - 361	AL345695, AW236342, AA704561, R13151, AL061313, AA745653, AW440976, AW338508, AL633168, AA838140, AA281461, AL246796, AW157005, AL028510, AA134669, AL291124, AL291268, AL537030, AA992126, AL302994, T07287, T16427, AA182569, AA772016, AL354243, AA262139, AA570632, AA179752, AA100540, AL473851, AW105737, AA284184, AA189069, W47444, T75029, F37052, AA657835, AL341548, F23327, AL088717, AW380074, AA747889, AA743811, AL135405, AL051037, AA528725, F19012, AC006480, AC005531, AL021977, AC005280, AC005102, AL021154, AC005046, AC005839, AL132777, AC005523, AC004099, AL031577, AL096791, AF205588, AC002059, AL109984, AC004953, AC006132, AC016027, AC005821, AF038458, AL121655, AC004447, AC004638, AF196970, AL023553, AC016830, AL049743, AC004019, AC005785, AL031597, AL049869, AC005015, AC006441, AC005412, AC004750, AC007193, AC007666, AL022336, Z84487, AF196779, AF109907, AC000070, AC006211, AL035249, AC005225, Z98036, AC005081, AL031311, AL022311, AL008723, AC005519, L44140, AC004134, AC007878, AC000052, AC007055, AF207550, AL021397,

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HCUGH79	9199	775206	1 - 265	15 - 279	AC005082, U91326, AL121652, AC002544, AC007546, AL049576, AP000207, AP000129, AF111168, and AC002527.
HCUGH64	9200	746600	1 - 198	15 - 212	AA287351, AA501902, AL669116, AL085242, AC004596, Z84484, AC004257, AC004876, AC007263, AC008134, AC005756, AC004598, AL023553, AC013256, AL008730, AC002312, AP000499, Z98044, Z93023, AC002470, Z98884, AC006285, AF205588, AL031589, AL132987, AL049540, AC004963, AC005041, AL022316, AC007845, AC016025, AC006539, AB026898, AC004938, AC005323, AC005565, AC006487, AC004087, AL121655, AC016026, AL034549, AC005231, AC006511, AL031733, AD000812, U65487, AC004922, AC002126, AC002352, AC005015, AL022722, M23282, and AC006064.
HCUGH52	9201	726052	1 - 268	15 - 282	H85104.
HCUGH144	9202	716624	1 - 46	15 - 60	AL121385, AW118338, AL039145, AW089101, AW263724, AI474221, AL135357, AW087356, AA303007, AA504818, AA774222, AA761028, AI124610, T60156, H04977, AL040653, R95139, AI630176, AA847952, AL046519, AI476089, N73872, AA843628, AA457425, AA834665, R34062, AI333016, AL038072, AF112484, AP000276, AP000275, AP000105, AP000037,

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HCUGH42	9203	713782	1 - 304	15 - 318	AA084609, AA489390, AI801563, N27340, AI049999, AI061313, AA502991, N38991, AA199578, AI267356, AI267450, AA693484, AA778580, AI590404, AI749823, AA846923, AI285651, N27737, AA679794, H62123, AI355246, AA570740, AA483606, AI678468, AC005071, AC007686, AC004851, AF207550, AC000025, AL049694, AC004024, AL021707, AL031255, AL022336, AC005736, AC006125, AC004408, AC002477, AC006211, AC002126, AL035422, AC005519, AC005911, AC004099, AC005081, AC007201, AL049766, U78027, Z93783, AC006441, AC006450, AL109984, AC020663, AL021453, AC004531, AP000553, AC005253, AC004098, AC005527, AC002565, AC005013, AC007687, AL031291, AL033527, AP000558, AC005839, AL049795, U91326, AC006050, AC007842, AC006449, AC005779, AC004962, AC005594, AC005207, AC005280, AC000353, AC016830, AC004686, AC009247,

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HCUGD30	9204	850041	1 - 450	15 - 464	AA243882, AA243875, AA604094, T96337, and T93503.
HCUGC25	9205	464029	1 - 431	15 - 445	F33795, N44137, H57810, AI143242, W79504, AA720702, AI262909, AI364020, AI937850, AI537955, T06828, R97780, AA720758, AA578997, AA347368, AW088058, AI434695, AI364809, AA862173, AA661948, AA665021, AW276435, F03525, AI282336, AI357551, AI446464, F10924, F18638, AI053790, AA665330, AA405453, T40077, AA502720, AA837740, AA626404, N64279, AA744031, AF150152, AW276586, AI623898, AI266133, AA503119, AL038705, W47183, AA340747, AI583594, AW008317, AA773733, R94721, AA338486, AA367986, AI300167, AW406447, AI798266, AI138265, AI357288, AA649642, AA513972, AI281903, AI133164, AI284640, AW072923, AL048925, AA483731, AA973803, AW419262, AA330575, AI270248, AW021583, AA451612, AA583955, AA441788, AA856848, F17891, AW250970, AA579736, AA079101, AI921541, AI697208, AA350859, AA610491, AA729721, AI281881, AA599920, AW193432, AI924251, AW193265, AI064864, AI688846, AA480772, AI471481, AA548511, AA347034, AA343007, AI061334, AL119984, AA837351, AA551356, AW340844, AA806796, AI499938, AW151727, H95681, AI350211, AA747777, AA568778, AW265393, AI270117, AA825357, AA649705, AA468022, AA664015, N92703, AW072587, AA576336, AA708352, AI344844, AI053672, AA828042, AA584637, AW008450,



AA635105, AA804962, AI002834, AA572975, AA683258, AA189117, AA302963, H93144, AI352078, AI434311, AA781010, AA587256, AI824562, AA702614, AA771811, AA587604, AA719805, AI708009, AA570227, AI191227, AA569387, H96730, T07451, AA714453, AA653957, AA133986, AA126777, AA810370, AW023270, AA565733, AL137954, AA526779, AA829223, AA364429, AA368936, H13757, AA084725, AW303196, AW438643, AW273218, AI301700, AW274349, AA856954, AI917156, AA471084, AA934680, AA908357, AI358343, T06556, AI355206, AA584790, AI003751, AI888365, AA577906, AA668578, AA533725, AI653905, AA446657, N68051, F04478, AA503154, AI358431, AA640900, AL038474, AA523838, AA523837, AW301350, AL044940, AI254338, AI354426, AI219406, AI002820, T41124, H64548, AA804379, AA502866, AI903462, AA469460, AA650450, AA581903, AA352803, AI246119, I47228, AC005157, AL031427, U91326, AC005544, AC003681, AP000010, AJ006345, AC006479, AL080242, AC004925, AC006079, AC002350, AF161343, AC00377, AC000004, AL008725, Z82214, AC002429, AC004075, AC007486, AC002412, AC005060, AL078613, AC004448, AF039590, AC016025, AC004808, AC006023, AC006006, AL096791, AC004890, AC004002, AL110502, AL031229, AC007748, AC004526, U91322, AC006285, AP000080, AC008012, AC007240, AL133500, AC007437, AL022165, AL031431, AL121603, AF017104, AL121852, AC006487, U67827, Z98752, AC002067, AJ246003, AC002289, AC004738, AC002465, AL022329, AL049643, AC005220, AC004916, AL035079, AC003029, AC000118, U18398, AL078621, AC009516, AF027390, AC006966, AC006207, AC005703, AC004522, AL022320, AC005191, AL035424, AC006313, AL009174, AC002407, AC005288, AC005243, AF067844, AC007488, AC002563, AC005972, AL121658, AL031054, AC000025, AC004844, AC005527, AC003693, AC005011, D83989, U57009, X54181, X54178, U57005, X54176, I51997, AC004158, X75335, AP000356, Z97635, AC009223, AC008151, AC004895, AC005023, AL022723, AC004933, AC005412, AE000659, AP000855, AL049759, AF111167, AC007406, AC002544, AC005901, AC008268, AL049779, AC002449, Z84469, AL035458, AC002303, AC004865, AL109853, AL022316, AP000160, Z68289, AC002432, AC007510, X54175, AJ251973, AC003670, AC005899, AC006252, AC000085, U04355, AP000553, AF070718, AB000882, AC007559, AC011311, AL008629, AC005007, U73332, AC005071, AC006512, AL009179, AL031965, AP000226, AC005089, AC006486, AC007684, AC005075, AC005015, AJ003147, AC007227, AL008635, AE000658, AC005536, AL033381, U14684, U14685, AP000557, AC006040, AL022311, AL021878, AC005962, AC005702, AC005670, AC004596, AC005210, U18391, U18392, U57006, U18394, AL050343, X55925, U18393, X54179, AC006130, U18390, X55932, AC006353, AC002420, U67825, AC007735, AC005529, S70707, AC004485, AC004531, AP000959, AC004150, AC006965, AC006210, AJ010770, AC005252, AC005355, AC016026, AL136168, AC004645, AL022336, S56773, AL035071, AF124730, AC006958, AP000087, AC006195, Z93783, AC007845, AC006996, U57007, AL035671, AC004544, AC005209, AL023553, AC004854, AP000038, AP000106,

HCUGB93	9206	850043	1 - 434	15 - 448	AC005343, AC005076, AL031277, U73649, AC005342, AL031670, AL035551, AL031848, AC016027, Z99129, AP000705, AC006254, AL031584, AC005046, U58675, AF128846, AF128847, AC007685, AC004745, AC016830, AL078476, AC007050, AL109938, Z94056, AL136363, AL031228, and AL034420.
HCUGB58	9207	736092	1 - 99	15 - 113	AC004020. AW263724, AI254913, AA478355, AW089101, AL135357, AI791913, AI792133, AI821714, AA219018, AW074913, AA502538, AI445088, AI469577, AA858372, AA493894, W01985, AI866487, AI470646, AA364453, AA526331, AW410354, AW023149, AW081871, AI273012, AI818737, AW084246, W03286, AI559705, AA693688, AI821785, AI751216, AA018823, AA547947, AI343148, AL134988, AI590485, AA846952, AI333016, AI560085, HI8354, AI732547, AA953238, H23653, AW384990, AA767412, AL134439, AI969436, AI783581, AI309375, AL119691, AA587604, AA526630, AI859946, AW088846, AI343233, AI382825, AI819140, AA582073, AA714110, AA937427, AL042853, R44116, AI134275, AI696962, AA449997, AI798473, AA468022, AW087356, AA326372, AI452726, N52358, AA584733, AA587509, AW275666, AW265393, U69194, AI025864, AW080811, AI630176, AA781669, AA303007, AW103758, AL039145, AI932599, AI572924, AI002941, AA654781, AF034184, M77933, AA701080, AL030997, AC000090, Z86090, AC007308, AC005874, AF134471, AL035420, AL021918, AC004796, AC004797, AC002470, AC007226, AL121877, AC005829, Z93023, AC004878, AC005209, AC003043, AC005933, AC005057, AC004673, AC000080, U72790, AC004975, AP000505, AP000210, AP000132, Z81369, AP000248, AL079295, AC004985, AC004966, AC004033, AL050341, AL023803, AL008718, AC004686, AC007041, AL049576, AL022165, U52111, AC005500, AP000354, AC005071, AF129756, AL034418, AC002314, AC004895, AC005994, AI049377, L35667, AF135187, AC005612, AL109798, AL035530, AL049844, Z82215, AC009028, AC010206, AC007156, Z97054, AL035067, AL035400, AC007690, AC004900, AL021391, Z83846, AC007686, AC003986, AC007537, AL022721, Z82198, Z99716, AC007056, AC004755, Z97056, AC004646, AC005538, AP001037, AC004024, AC005257, AC003104, AC004232, AC005245, U73636, AF152365, AL022322, AL031657, Z98752, AL022578, Y14768, AL034548, AL021026, Z94721, AC004685, AF038458, AC004865, AC005393, AL022313, AC006254, Z94056, AC002350, AC006581, AC004456, Z99570, AL022336, AJ006996, AC004051, U89335, AL078585, AC007676, AF091544, AC006597, AC005088, AC007199, AC009743, AC002559, Z83844, AL050311, AC005479, AL121595, AC003101, AC007993, AL049301, AP000141, AC002115, AC005412, AC003692, AC003112, Z68323, AL022318, AB023048, AC004605, AD000812, M59199, AC007055, AC005998, AF170813, AP001054, AC005952, AL031055, AL031730, AL035691, AP000390, AC005067, AL049550, AC007242, AL096843, AC005682, AC005411, AC007371, AC005939, AF191069, AC004520, AL021393, AF096876, AL031291, Z84484, AC009247, AC004499, AL031672, U91326, AL024507, AC004000, AC002040, AC005354, AP000088, AL109952,

HCUGB37 HCUGB22 HCUGB20	9208	706468	1 - 194	15 - 208	AC004552, U95742, AC004881, AC005969, AC008033, AL109967, AL109654, AC002543, AP000257, AC006511, AC005037, AC005486, Z69706, AC005971, U40369, AF165926, AP000493, AF199339, AL020994, AL021937, AC000029, AC003102, AL050308, AC005332, AC007731, AL121825, AC005668, AC005253, AL033392, AC004263, AC002984, AP000656, AC005391, AC005379, AL096761, AL049776, AC008055, AC005846, Z94277, AC005632, AC005011, AF001549, AL031575, AP000230, AC005274, AC004799, AE000659, AC004854, AP000042, AP000110, AB020862, AP000144, AL121655, Z97876, AC005899, AP000348, AC006146, U63313, AC004242, AF003626, AC004969, AC006077, AC007934, AL021155, AC002126, AC000025, AC005527, AL023807, AC005015, AC005529, AB023051, AJ246003, AC004002, and AL109807.
	9209	575851	1 - 339	15 - 353	AI274773, AL044966, AA642918, R99617, and AC005822.
	9210	669742	1 - 314	15 - 328	AI741850, AA595206, AA720782, AA081138, AA668973, R08918, R09410, AI261358, Z93023, AC004491, AL031255, AC007308, AC005702, AP000502, AC005089, U85195, Z83844, AE000658, AC006441, AC004596, AC005568, AC002310, AC005874, AF134471, AC006254, AL133445, U91323, AC005102, AC005057, AC004837, U91321, Z98044, AC004893, AC004813, AL049830, AP000555, AC004895, AC006449, AF196969, Z84466, AC005412, AC004531, AC011331, AC005031, AL022324, AC004167, AC002470, AC005841, Z98050, AC006013, AC006141, AC004777, AC008040, AB000882, AC007676, AC004686, AF049895, Z82195, AP000501, AC000353, U95739, U80017, AC007298, AL109758, AC006252, AL132992, AC006285, AC004031, AL034548, AF111167, AC005330, AC007786, AL049569, AL009181, AL031447, Z47046, AC005231, AC004638, AB026898, AC005071, AC000026, AL049795, AC004242, AC005921, AC005081, AL096791, AC007546, AC002551, AC005678, AF053356, AF031078, AL021578, AL031589, AC004087, AF196779, AC005086, AC003684, AC006238, AL132712, AC002472, AD000091, AF030876, AC005971, Z95115, U47924, AC006277, AL033392, Z85986, AP000355, AP001067, AC006480, AC004882, AC004927, AF129756, AC007664, AL023553, AC006071, AP000116, AP000049, AC006084, AC002059, AC003077, AL031283, AC006537, AL031775, AL049761, AF111168, Y10196, AC005072, AC004963, AP000493, AC004526, AC004612, AL031289, AP000311, AC007216, AL031003, AL049570, AC005696, and AC005049.
HCUGB14	9211	854035	1 - 363	15 - 377	AI251002, AI205126, AA515435, AA886584, H64777, AW243698, AW088202, AI929531, T08438, AI358571, AI446464, AW029038, AA634146, AA348929, AW162049, AL038785, F36273, AI962050, AW166815, AA229785, AA729721, AI133636, AA826303, AI339850, AI904894, AI567674, AA713815, AI917271, AI469003, AI625244, AA669416, AI890923, AI281881, AI046409, AI679782, AW440836, AL120674, F17761, C05755, AI608626, AA483068, AA350859, AI064804, AW276827, AA347368, AL119391, C06327, AI754955, AI083946, U51696, AI866956, AI083998, AI309740, AI081095, AF150152, AI918421, AA719080.

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HCUFY79	9212	494008	1 - 551	15 - 565		

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HCUFW11	9213	850054	1 - 495	15 - 509	H90851, H90192, R10716, AA493603, N63093, R92937, AA714012, AA069926, H58474, AA745570, AA653323, T47274, AA598964, AA653202, A1732164, A1821721, AA214346, AW265139, AA669434, AW069667, AA846890, A1452778, R84431, AW068977, H29460, A1281475, M63796, AL078476, AL117355, AC004526, AC004491, AC004841, AC005800, AC005015, AF030876, AC004923, AC004477, AC005912, AC002551, AL035685, AC004685, AC007226, AF190465, AF031078, AC004217, AC006257, AL035419, AP000210, AP000132, AP000696, U66083, Z99916, AL034417, AC004929, Z98742, AF010238, AC005736, AC004598, AL121657, AC005102, AC002456, AC004257, AL033392, AL034343, Z84467, AC003102, AL031680, AC006101, AC005046, AL096803, AC010206, AL031686, Y13537, AC005081, AC004197, Z85987, AL031311, AC003670, Z95116, AC005768, AC004884, AL023284, AC002378, AC002300, AC007192, Z49918, AP000248, AC004814, A1746003, Z47046,

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HCUFW09	9214	625658	1 - 188	15 - 202		T92360, and AC005071.
HCUFT37	9215	706467	1 - 419	15 - 433		AW445217, AA022880, AI928545, AW027901, AI290104, AI830526, AI820978, AW152451, AA015749, AA226104, AA226109, AW301855, T58513, AA506744, R99597, W32993, AW151870, T34558, AA487829, AI567676, AA757646, AI581006, T48770, AI174701, AI791408, AI791720, AW162762, AA354695, F35789, AI500315, T69899, AA653291, AA551030, T47138, AW262716, AW167202, AA847341, AA668421, AI884404, H37892, AA354677, AI821945, AI282330, AW148821, AI251024, AA809104, AI018726, N70293, AA300049, AI445699, R10144, AA147521, AL047405, AI702049, AI002952, AW265468, N78600, AA078225, AL138262, AW192930, AA757406, AL121039, AA621720, AW157128, AI918661, AA494047, AW410844, N53448, AA180857, H77666, AI064968, AI760850, AW162314, AL038533, AW162332, AI049999, M77964, C15811, AI538404, AA225519, AI744890, AA172103, AA349923, AA362440, AW407007, AA524846, R93823, AW262946, T59738, F09745, AW157173, AI459879, T59624, AW274180, AL031577, AC005280, Z82193, AC005203, AC006111, AL022476, AC004150, AC004383, AF124523, AF118808, AC004051, A65971, L81868, AC000094, AC000085, AC005877, AC006974, AC005058, AL022331, AP000280, AC004816, AP000107, AC007041, AL008719, AC006146, AC005534, Z98036, AC007738, AL031295, Z94056, AC002420, AL021918, AC002997, AD001502, AL035455, AE000660, AL109982, AC007367, Z94865, AF007876, AC005225, AC007421, AL022315, AC005746, AL049569, AL020997, AC007030, AC004671, Z98946, AL031602, AC004007, AF196972, AC005670, AC005411, AC006121, AC005839, Z85987, AC004771, AC004797, AL032821, AC005231, AB017602, AC006130, AP000503, AC005089, AF134726, AC007298, Z69375, AL031321, U73634, AP000967, AF064861, AC004966, AL133163, AF107885, AL049776, AC002984, AF124730, AF111167, AC002350, AP000349, AC005005, AC002472, AP000350, AC007664, AC009248, AC007686, AL022238, AL035681, AC008072, AC005179, Z98048, AC005519, AP001053, AC007058, U45945, AC006261, M81181, AC005752, AC004920, Z95115, AF047825, AL133445, AC007016, AJ246003, X69907, Z73979, AC004814, AC005300, AL049766, AC006946, AC007225, AF001550, AC006581, AP000300, M60806, AF165926, AP000693, AC000115, AC005320, AC002401, AL034429, L78833, AC005878, AC005821, U51561, AC004686, AC005354, AC004753, AC005239, U62317, AL121658, AL117258, AC002449, AL022165, AC004648, AC005159, AL049709, AL096801, AC005695, AP000045, AP000113, AC002045, AL022396, Z73360, AC004475, AP000538, AC002551, AL031683, AF200465, AC006367, AC004812, AP000557, AC002395, AC009516, AL137442, AC005531, AL132992, AF045555, Z61071, AL031659, Z92542, AC005324, AC007685, AL009179, AC020663, AC006006, AL020993, AC005049, AP000952, AC002477, Z68284, U07562, AC003030, AC004409, AC005808, AC004079, AC004685, AC003093, and AC004841.

HCUFQ08	9216	959567	1 - 444	15 - 458	AA555097.
HCUFPI1	9217	967155	1 - 361	15 - 375	AL037324, and W87497.
HCUFQ06	9218	796434	1 - 383	15 - 397	AW302013, AL046409, AI610159, AL138265, AI284640, AI963720, AI568678, AI334443, AW169537, AI754955, AA623002, AW193265, AI431303, AW276827, AI350211, AW438643, AI904894, AI345654, AI085719, AI110770, AI613280, AA610491, AA469451, AL046205, AI270117, AI432270, AI305766, AW419262, AI289067, AW274435, AI037683, AI340453, AI688846, AL138455, AI859742, AW072587, AI708009, AA577906, AI471481, AW338500, AI341664, AW193432, AI499503, AI053672, AI951889, AI042420, AI801591, AI434695, AL048925, AA581903, AI312309, AL137954, AI379719, AI951928, AW238278, AI287528, AI590958, AW088846, AI754658, AW406755, AI619997, AI865905, AA758934, AI375710, AI559705, AI061334, AI814735, AL040382, AI590689, AA857486, AA977743, AI358343, AI580652, AA916371, AA780515, AI969436, AI246119, AI064864, AI890570, AI890928, AI345518, AA490183, AA491814, AW085794, AI143242, AI559251, AI298710, AA587256, AA679672, H70615, AI564496, AA569471, AW148792, AA523688, AI446464, AI467919, AA488395, AI669453, AI344844, AI357288, AI473943, AI472222, AI674873, AI801600, AI365988, AI305547, AI358571, AI345157, AI249997, AI798473, AA872067, AI692808, AI355224, AA178953, AA192740, AA680243, AI589461, AI079645, AA084070, AI928898, AW406162, AA630030, AW008952, F32808, AL044858, AI358229, AA350859, AW067900, AI282832, AW410400, AI625647, AI091495, AI281697, AL044940, AI955323, AI017024, AI653886, AI038833, AA632624, AA302648, AI357551, AI307201, F29989, AA610493, AL120269, AA621858, AA877817, AL041706, AI499054, AA669840, AA569284, AI371070, AL138421, AL049871, AC002492, U66059, AL031257, I51997, U18396, AF077058, D83989, AF015149, AF009660, A39972, U18391, U18398, AC005330, X55925, AC005015, X54175, AC009516, U18394, U57009, U18395, AC004893, AC005161, AP000552, AC002467, AC005899, AC006160, X54181, AC004675, AL031295, AF015156, AC006544, AF088219, AC005703, AC005881, AL049643, AC004019, AC004382, X55926, AC007216, X55923, AC005837, U18393, AC002310, AL008715, X54178, Z98884, AF015151, AC000052, X54180, AC033397, AL050321, AC000072, AC005071, AC005696, X76629, Z49816, AF067844, X75335, AC004448, AC002527, U57005, U57008, AF205588, AC005598, AC004388, AC004992, AC004554, AC006079, AC002347, X55932, U18392, X54176, AL031774, AC006576, AC004596, AF134726, AC002558, AC004030, U57006, AL022329, AC004673, AC005839, AC016830, AC006543, U95742, U18399, AL031577, AC007774, AC005251, AC005808, X53550, U57004, AC002564, U18390, AC004970, AL008627, AL049562, L77569, AC005066, Z99129, AF015148, AL133396, AL049856, U57007, AC006480, AP000503, U47924, AC000353, AC006205, AL035448, AC005011, AC005250, AF015147, AL049647, AC003002, AC006989, AC004808, AC004933, AF085444, AF015157, AP000127, AP000205, U85195, L81648, AC007688, U18387, AC005295, M37551, AF015150, AC008009, AC006509, AL023882, AC002094, AE000658, U02531, AC005531, AC004028,

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HCUFO93	9219	792376	1 - 348	15 - 362	AA501508, A1914747, A1223948, H50970, AW021083, A1345780, A1174876, AA516164, AA230251, A1369580, N77109, AA835854, AC002472, AC003982, U96629, AC007664, AC004967, U91323, AC006547, AC002054, AC005274, AC004099, AC008018, AC007546, AP000553, AC003101, Z98884, AP001051, AF053356, AL020997, AC006141, AC005821, AF095901, Z98743, AC004590, AC005225, AL022336, AC004876, AC005952, AC004671, AC005659, AC004895, AL035071, AC004382, AC000097, AC005105, AC004882, AC005972, AF196969, Z95115, AC004707, AC007225, AC000353, Z95331, AC007036, AC002551, AC004887, AL139054, AL035685, AC006536, AL035455, Z77249, AF121781, AL049872, Z97054, AC005800, AC005295, AC005015, AC005899, AL022320, AC004985, AL049540, AC005414, AC005971, Z83822, Z93023, AC016026, AC004787, AC005822, AC005912, AF001549, AC004685, AF086284, AC004963, AC005488, AC004966, Z85986, AC005529, AC002365, AC006057, AC002511, AC005902, AL023807, AC005932, AL034420, AL031230, AC004983, AC005037, AC005914, AC005520, AC005231, AC006088, AC004253, AC006084, AC007565, AC005531, AC004491, AC005387, AL049569, AC007216, AC005756, AC002302, AC007938, AC004841, AC002352, AC005089, AC005193, AL133445, AC003109, AL031657, AC005874, AF134471, AL021154, U91321, U91318, AF227510, AL049709, AL096791, AC000159, Z84466, Z95113, AC005049, AC005740, AC004031, AC007055, AC003003, AF111168, AC006026, AL109984, AC002126, AC012083, AC004453, AL049874, AC005486, AC005764, AC004383, AP000555, AF196779, AC004883, AP000499, AC006538, AC005622, and AL009181.
HCUFO68	9220	753083	1 - 358	15 - 372	A1570261, AA491814, A1963720, AW088202, A1568678, AW029038, AW438643, A138265, AA482711, A1962050, AW193265, A1679782, AW303196, AW274349, A1284640, A1610159, A1350211, A1431303, AW301350, AA806796, AA652764, A1358229, A1046409, A1613280,



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HCUF043	9221	715337	1 - 229	15 - 243	<p>AC007225, AC004592, Z22650, AC005332, AC007298, Z84470, AF190465, AC005378, AC005379, Z83846, Z93023, AC005039, AP000359, Z93241, AL031054, AL031431, AC004385, AC006277, AC004953, AC005291, AC006006, AC007666, AL031774, AF015171, AL031387, Z98941, AC008372, AF015168, AP000402, U75931, AL121655, AC005046, Z84476, AL031257, U67221, AC006581, AC005484, AF015161, AC002425, AC000004, AC004453, AC006019, AL049757, AC008126, U02531, AL133233, Z82976, AL121653, AP000548, AL023494, AP000500, AL121748, AL022322, AP000358, L35531, AL008728, AC004814, AP000501, AC004987, AC004016, AC007358, X54176, U18400, AL031737, AC005399, AL050097, AC004963, AL080242, AC006305, AL034423, AC007676, AC003046, AL035458, AL022315, AP000966, AL121652, Z97054, AL035072, AC005839, AC004991, AL031289, AC004531, AC000159, AC006045, AC004675, AL121603, AC007387, AD000092, AL035684, AL135744, AP000311, AC004797, AC007262, AC005529, AC003043, AL096771, AP000468, AC016027, AC006160, AL049845, AP000553, AC004637, AC010197, AC003664, AC005209, AP000275, S56773, AC005212, AL049643, AC004940, AC016831, AP000141, AP000090, AF088219, U47924, AP000962, AC003986, AC006312, AC001163, AP000105, AP000037, AP000206, AP000128, AL049766, AL033397, AC004890, AC003075, AC005923, AL033392, AC006241, and AC002377.</p> <p>AA661921, AA613591, AA063173, AL270117, AW193265, AI583283, AI431303, AA527630, AA689526, AW274346, AA584167, AI350211, AW438643, AA828227, AW406755, AI634384, AI345157, AI370094, AI284640, AA490183, AI613280, AL044940, AA503600, AI370074, AA559290, AI358229, AI345654, R98359, T94842, AW023990, AI860013, AW083402, AW303196, AW083364, AW274349, AI754658, AA826303, AI305766, AL119691, AA326372, AW301350, AA847409, AA468244, AA812281, AA613397, AL046409, AA634889, AA482711, AA653375, AW021207, AA658362, AA483223, AA577906, AI688846, AW264934, T40452, AI494203, AI962050, AA493708, AW419262, AA599920, AW193432, AW088202, AW069769, AA601433, AI619997, AA630925, AA551503, AI918421, AA083046, AA855101, AI687343, W45625, AA580808, AI625244, AA847499, AW196064, AW302013, AI698447, AI744995, AA581903, AA584805, AA661814, AA492081, AA603185, AI754955, T51911, AA992351, AI696962, AA467820, AL041690, AI358431, AA502860, AI289067, AW263477, AA782304, AA548586, AW302903, AW050498, AI241821, AA169263, T41259, AI459768, AA664015, AA719805, AI054352, D52587, AA834667, AA569471, AA574442, AW408047, AA938105, AL038705, AA501762, AI932493, F34498, AI814735, AA613227, AW021583, AA623002, AI282511, AL036037, AI054343, N53150, AI084294, AW261871, AA834755, AA494097, AA602047, AI866160, AW149156, AA491831, AI375710, AL038785, T40308, AL079511, AW273218, AA525824, AA584201, AL046205, AI886432, AA737318, AA848134, AI963720, AA618452, AA548689, AA857486, AI251002, AW265385, AA838190, AI338350, AL037683, R40056, AA309530, AA483771, AA491862, AA578861, H40936, F08473, AA610688, AA613203,</p>
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<p>             AI554201, AA679532, AA837084, AA707833, R77905, AW028392, AW341900, AW276827, F25199, AA577959, AI19265, AA715355, AI110688, AA502991, AI679782, AW276435, AW029038, AW168618, AI281881, AI434695, T41247, AA550758, AI341664, F17761, AA351056, AW270382, R08076, AA522942, AA573020, AA586458, AA713891, AA515905, AI002834, AI339850, AA507547, AA019312, AA629992, AA219225, AI192631, AA469451, AA788982, AA747070, AA984708, F18531, AA531186, AA316905, AI873990, AA757797, AA078441, AI798489, AI824706, AA502818, AI583612, AA904305, AW238583, AA829223, F17555, AA491650, AI132800, U18391, U18392, U18395, U18394, X55925, X54179, U57006, U57008, U57005, X55926, U57009, X55927, U18387, U18393, U67831, X55929, X55933, X54177, X55931, X55924, X54175, X54181, U18399, X54180, X54178, U18398, I51997, L47228, U67832, AC005907, U18390, U04355, U18388, X55932, D83989, X54176, U18400, X55930, X55922, U67801, AF023268, AI132712, U66059, X53550, M37551, AF015147, AC005523, X55923, AR000118, AD000684, U71148, U67222, AC003035, X75335, AF015157, A67988, U63630, U67217, U18389, Y09781, U67231, AF015151, Z69917, AC004453, U95742, U67229, AC002347, AC004765, AF015149, AC007216, AC007237, AC003003, U67230, AC005253, U57007, AC005102, AC004954, AC004756, AC005387, AC006002, U67233, AC004493, AC010168, AL078477, U67226, U67227, AC004070, A39972, AC006006, AL008716, AC005821, AC007242, U02532, U18396, AL031681, AC006374, AL050097, AC003007, AC005829, X88791, AC002507, AC005046, AC006210, AL035445, U67225, M37547, AC006552, AC006972, AC007590, AC006486, AC005157, U57004, AC004953, AC002289, AC007151, U91321, AC008372, AC004053, AC003045, AC007919, U67228, AC006384, AL035681, AC006204, AC002429, AP000275, AC010169, AL049845, AC008044, AC004745, AC000355, AL022400, AC005632, Z98051, AC007030, AL132799, AC005968, U67235, AC005784, AC004019, M61835, AC007051, AC000052, X03272, AC008115, AC006239, AC005495, AP000037, AP000105, AC006442, Z49816, U02531, AC005231, AR036572, U91328, AL031312, AC002377, AC005988, AL035411, AC006101, Z94277, AL022329, AC004816, AP000431, AL022722, AC007159, AP000328, AF184110, AF067122, AL035665, AC005962, Z81364, AL021546, AC004989, AC006371, AC005323, AL078463, AC004808, AL020995, AL034561, AC007243, AC005621, AC005245, AL135746, AC007262, AC006501, AC004603, AL035552, AC006285, AC003980, AL049550, AC007253, AL109801, AL034549, AL117342, AC004815, AC004933, AL023494, AC005488, AL109853, AL049766, AL136018, AC018769, AC005284, AC004947, AC007564, AC002470, AC007011, AL008720, AC005182, Z93241, AC004465, AL033543, AL023581, AP000282, AC000047, AC004833, AL050308, AC002540, AL121823, AL033525, AL031391, Z99495, U85196, AL021978, AC003009, AF010238, AC004502, AC005923, AC004152, AL121748, AC004814, AC006030, AC006271, AF128525, AC007437, AC005739, U85198, AC005754, AC000066, AF077058, AL096770, AC005484, AP000108, AP000040, AP000123, AP000055, AP000170, and X55928.           </p>	
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HCUF036	9222	575850	1 - 441	15 - 455	AA306060.
HCUF024	9223	677273	1 - 452	15 - 466	AI267858, AI267573, AI267490, AI267216, AI267669, and AC005332.
HCUF011	9224	967156	1 - 453	15 - 467	AA442883, AW204253, N95221, N95171, AW340237, AI222434, AI812038, R31121, AA618508, AI983344, AI143805, AA879440, AI250910, AI654496, R31082, R48546, R41487, AI659922, AI698459, T98808, R79982, AA909113, R25153, H67267, R07369, R76503, R83351, R77383, H54440, R27769, H21958, and H62374.
HCUFN78	9225	773620	1 - 363	15 - 377	T52610, AA283902, and AA703521.
HCUFM35	9226	706461	1 - 400	15 - 414	AI538438, AA086258, AI383110, and AA112018.
HCUF040	9227	711242	1 - 389	15 - 403	AA190564, AI802383, AA193673, T54701, H60718, T54617, AI033527, AC005015, AC004554, AF196969, Z98200, AI080243, Z98941, AC003102, AI034379, AI009181, AC005513, AC005102, AC004889, AP000047, AF067844, AC004526, AC002378, AC002477, Z81364, AC005529, AC005523, AP000365, AL021407, U91318, AC005081, AC004216, AC009405, AP000115, AL096791, U95739, AC005755, AL121603, Y18000, AC006487, AP000696, AC004841, AC004983, AC005994, AC005291, AC004685, AI096773, AC005592, AC004975, AC006312, AC004832, AL023096, AL031666, AI034417, AI023284, AI080241, AC007425, AC006449, AP000502, AF053356, AF001550, AC003950, AI031681, AI035685, AI035422, AL049744, AL021154, and AC002302.
HCUFK09	9229	961145	1 - 424	15 - 438	AA584134, AA583892, and AC006276.
HCUFJ08	9230	850074	1 - 206	15 - 220	AA156314.
HCUF150	9231	974472	1 - 411	15 - 425	AA095641, AA471338, Z66259, and Z66258.
HCUFF74	9232	765662	1 - 382	15 - 396	AA100176.
HCUFES5	9233	731843	1 - 171	15 - 185	AI359088, AI420695, AI419227, N92325, AA424589, AI246165, AI277557, AI123268, AI122787, N31489, AI160097, and AL031297.
HCUFES4	9234	730745	1 - 300	15 - 314	AA250762.
HCUF070	9235	757280	1 - 629	15 - 643	N73061, R10527, N53696, AI077389, AI032040, and R10119.
HCUES01	9236	916805	1 - 596	15 - 610	AA565210, and AA565209.
HCUEQ12	9237	922556	1 - 435	15 - 449	AA043442, W79487, AA670449, AI801522, AW152284, AW328473, AI270655, AI819023, AI884682, AW071997, AI523995, AI831391, AI8277306, AW268528, AW006973, AI625967, AI719530, W79431, AW194190, AA630129, AI709152, AI207503, AW083219, AW235333, AI680026, AI797189, AW275903, AI282238, T30026, AI832628, W79332, AI970208, R14878, AI968008, AI652332, AI631584, T30434, AW196568, F20226, T47161, AW384586, AI867971, AW384680, T23926, AL047696, AW384676, AA632058, AI432606, AA043441, T34452, AW235729, AI674454, AW384658, AW003005, W79631, Z43470, AW384653, W00670, F08757, R21703, H05366, T27643, AA448723, N41797, T80148, AA316541, T32038, N98906, AI371701, H17706, AW409853, AW062715, AA075111, T31757, H23423, T36166, W23945, AW062719.

HCUEP32	9238	586999	1 - 261	15 - 275	<p>F05919, W35174, M62128, N25478, W25399, AF113701, AC005297, and AL110153.</p> <p>AI284640, AL046409, AI431303, AA490183, AI270117, AA521399, AA521323, AW274346, AW193265, AI963720, AA834707, AA584167, AA623002, AI754955, AA610491, AA613203, AW088846, AI583283, AW303196, AA581903, AW274349, AI613280, AA493471, AI281881, AI860013, AL119691, AI350211, AW301350, AW268300, AI345654, AA613227, AL042853, AW419262, AI305766, AL121235, AW270382, AW302903, AI708009, AW327868, AI345157, AA720702, AA469451, AA721056, AL138265, AW028429, AA610688, AA526787, AA587604, AA877817, H56509, AI633390, AW021583, AI610920, AA682912, AI192631, AI625244, AI345681, AI345675, AI732120, H71429, AA832181, AI434695, AI696962, AA219129, AA584145, AA649642, AI536665, AA507824, AA503475, AA719292, AA503473, AW062724, AA665330, AW162049, AA531372, AI929531, AI339850, AI919265, AI038705, AI064864, AW029038, AW304584, AI358571, AI962050, AA468131, AA856969, AA829223, R88888, AA846935, AW249224, AI801482, AA775207, AI754658, AA478355, AA713815, AW088202, AW270270, AA394271, AL037683, AI249997, AI570261, AI611990, AL043719, AA837084, AA522942, AA632837, AI281468, AA548058, AI708125, AI969436, AA679514, AI917271, AA551503, AA577906, AA244357, AI889781, AW083402, AF034184, AW276817, AI798473, AI251436, AI918421, AA525824, AA846876, AA523838, AI567674, AA610493, AW439558, AI168185, AW438853, AW440836, AA771811, AA491814, AW167372, AW261871, AW069769, AI133164, AW276827, AA584195, AA582911, AL044940, AA601222, AA713891, AA482711, AL046205, AW073470, AI744995, AA683258, F27407, AA834792, AI133636, AA649781, AW166815, AA503600, AA523837, AI251002, AL134972, AI749559, AA533303, AA661948, AA662225, AI110760, AA649705, AI473943, AL042420, AI567076, AI688846, AI053672, AI634384, AI471481, AA680243, AI679782, AA491284, AA351056, AW265385, AI890923, AI939465, AA584201, AI499938, AA599920, AW193432, AA584752, AI469003, AA601492, AA634146, F30933, AA580808, AA493206, AI368745, D83989, AF077058, X55929, AF015156, U18391, U18392, U18394, U18395, X55925, X54179, X75335, U57008, U57006, U67801, U04355, X55926, U57009, X54181, X54178, I51997, X55933, AF015147, U67831, X55927, U18396, X54180, X55924, U18387, U18393, U57004, AF015151, X54176, U67832, X54175, X55931, U18398, U18388, U67825, X53550, U57007, U18399, Z22650, U67829, U18390, X55922, X55932, U18400, AF015153, U02532, AF015149, U67211, X54177, AF015167, S43650, S75201, U57005, AF015166, A39972, AF015155, U67233, U67231, M37551, X91841, U67222, X55923, U67226, U67827, L47228, U67217, AL050097, U67229, X88791, Z49816, AC006126, U67225, U18389, AL023882, AF015158, X55930, AC005251, AF015148, Z69666, U02531, U14705, U14695, U14694, AC004686, AF015154, X76629, AF074708, M37547, AC005821, U72787, AC002377, Z78627, AF145473, AC005291, AF141976, U14698, AL022302, AC005412, AL022163, AF088219, U67216, AC004381, S75337, M87919, AC004887, AC007043, AC004626, AF158642, AC004901, AC005694, Z81369, AC008014, AF015162, AC004592, AP000555,</p>
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HCUEO74	9239	576576	1 - 209	15 - 223	<p>U49740, AC004167, U14701, AC007848, AC00501-, AC004204, E01888, E02193, U12580, AC005209, AL031722, AC002564, AC005306, AC003080, AR042836, U12582, AB020859, AC006128, AL079295, AL049553, AC004232, AP000088, AC005603, AC006277, AC004987, L81648, AF165142, AF085913, AC004940, AL121591, Z82210, AC005387, AL049647, AF015157, AC004678, AF067122, AC004771, AC000353, AC020663, AC003111, AC005102, Z98051, AF067844, AL008728, AC004650, AL031680, AC006292, AC002347, AC007298, AC005527, AC004933, U14700, AC002300, AC006565, AC005622, AC004205, AC005703, AC005565, AL021940, AC004210, AF090944, AC006022, AC004253, M19045, AC018633, AC005253, AC009227, M22900, AL133396, AL031668, AC005046, AC002430, AF190465, AL136295, AC008372, AC000118, AC006064, Y18000, AC006367, AL133371, AC004016, AL031054, AC004859, AC005919, AP000468, AL031734, AF121781, AL121603, AC006205, Z86061, Z70042, AC004019, Z68192, AP000359, Z98752, AC007384, AL049776, Z99716, AC003085, AL096765, AC008067, AC007099, AC006251, AC004986, AR000118, AC003692, AC005366, AL096861, AC002102, AC007666, AC004883, M96868, AL136297, AC006241, AC004643, AC005288, D87675, AL078604, AC004690, AC005745, AL050308, AC004675, AL133399, AC003980, AL079340, AC005768, AC003691, Z93241, and Z82976.</p> <p>AW263415, AI932493, AI133297, AI445674, AA661921, AA618452, AA279421, AA478355, AA584167, AA634889, AI499588, AA551552, AW270343, T06754, AI953275, AL138455, AW275510, AW117809, AL045808, AL046156, AA368059, AI284640, AL046409, AI334443, AI872020, AW303196, AI270117, AA468244, AW193265, AA477122, AI963720, AI635739, AW301350, AI583283, AI691091, AI345157, AA455670, AL042853, AW274346, AL046266, AA834792, AA658362, AI311927, AA515334, AI241821, AA490183, AA857486, AL042753, AI754658, AI133164, AW301995, AW002350, AW023990, H71429, AI816141, AI873852, AI004704, AL038606, AI471887, F00107, AI247199, AA719292, AA504877, AW084466, AA508359, AI754336, AI292257, AI732547, AI536665, AI350211, AA912099, AW163293, AW069769, AA483223, N58361, AA401240, AA745406, AA679634, AI370074, AW088616, AA908514, AA493695, AA568869, AI110844, AA483929, AI613280, AW083402, AI687343, AW302903, AW303002, AL042420, AI860013, AW235497, AL041690, AL037683, AA533333, AW274349, AL138396, AI307608, AW304584, AI932599, AL119713, AW088846, AA847499, AI345654, AL044940, AI027459, AA702729, AI040342, AA623002, AA019312, AA630672, AI524397, AI039584, AA013124, AI421841, AI696962, AI744826, AI633390, AA610491, AL121235, AL046205, AA453558, AA063173, AI368745, AA333638, AW023149, AI053406, AI561060, AA747070, AI537506, W01230, AI431303, AA192740, AA178953, AL047427, AI686267, AL043009, AA469451, AI369580, AW419262, H42271, AL038966, AA167055, AW168618, AA526787, AA526316, AW118539, AA487888, AA018283, AI925579, AW402237, AW075511, H18354, AI305766, AW021207, AI064952, AI805349, AA708664, AL045053, AI002510, AA083046, AW021735, AI370094, AI929627, AA601355, AA633753, AI084294,</p>
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HCUEO20	9240	669764	1 - 534		
HCUEM93	9241	792424	1 - 385	15 - 399	T71381, T71249, T89573, and AI129177.
HCUEM15	9242	660450	1 - 356	15 - 370	AA173444.

HCUEL24	9243	677300	1 - 468	15 - 482	H23054, and R54553.
HCUEL07	9244	933587	1 - 548	15 - 562	AI573289, AW295640, T62516, and T62587.
HCUEG27	9245	683541	1 - 532	15 - 546	H62726.
HCUEF38	9246	706450	1 - 280	15 - 294	
HCUED05	9247	932123	1 - 181	15 - 195	AA425283, T94247, C15966, AI754926, AI547110, AW085751, AI523991, R51854, AA063493, AA063419, AI696455, AC005755, AL049694, AL035086, AL049795, AC004526, AL109628, U91324, AC011311, AF088219, AL008734, AF207550, AC004675, AC004098, AP000497, AL021707, AL031668, AC007563, AC005519, AF196779, AC007051, Z93023, AC005082, AL022313, AC006509, AF084517, AC006449, AC005695, AC006511, AL133448, AC006139, AL049776, AC004263, AC004856, Z82198, AP000300, AC004000, AP000501, AC004797, Z97054, AP000359, AL022311, AC006077, AC005779, AP000496, AC003013, AL049757, AB014079, AP000344, AC005822, M63543, AL133321, AP000045, AP000113, AF001549, AC005372, AC004148, AC005067, AC005207, AC006121, AC000353, AL080243, AC004702, AC005899, AL022316, AF217403, AC004072, AC005726, M63544, AC005839, U52112, AC004491, AC006441, AC004805, AB001523, AC007934, AJ003147, AL133244, U62293, AL035420, AP000514, Z97632, Z97056, AC004236, AL022721, AL022322, AL132712, AC004650, AD000092, M89651, AL034379, AC003109, AC004876, Z82215, AC000115, AR004690, L78833, AC005099, AC005225, AC002395, AC004929, AC005668, AC007919, Z94056, AC005261, AL096678, AP000355, AL008582, AC005057, L78810, Z83838, AP000354, AC005624, AC005179, AC004134, AC006211, AL035400, AL050321, AL033392, AL031427, AL096701, AL022302, AC005274, AC002559, AC004841, AL008722, AC007676, AC003065, AC003043, AC002369, AC004884, AL008716, AC005412, AC007371, AC005829, AL020997, AC005003, AL031680, AC005033, AC005251, and AC004167.
HCUDY74	9248	839955	1 - 375	15 - 389	AA501344, AW086257, AI569202, AI267847, W07032, AI510838, AW088202, AA584201, AW406755, AI580652, AI255095, AA344959, AI493546, AA488395, AI358229, AW301818, AI865364, AA551509, N43757, AI547286, AA384502, AL041368, AI205126, AI989742, AW236342, AI433187, AA450199, AL138265, AW023672, AI921649, F29989, AI376100, AL036706, AW361583, AA428414, AI076396, AW074059, AI356904, AI357477, W60516, AI922654, AI564284, AI053429, AA482711, AA916039, AA658235, AI561335, AI610159, AW074398, AA063118, AA828851, AW265294, AI307426, AA826032, AA486680, F28576, AA394271, AI250019, AI365988, AI963786, AW440976, AA557325, AI569086, AI354397, AW339687, AA828680, AA593060, AI284640, AA828696, M78150, AI635272, AA723017, AA626678, AA826144, AI038279, AI016000, AI079910, AI144055, T29360, AA136829, AA515051, AL079645, AI471464, AL042856, AI291124, AI471487, T40286, AI003743, AI291268, AA679266, AA228420, AI537030, AI053816, AI054246, AI431688, F36273, AI453383, AI679782, N27353, AI871825, AW080134, AL040130, AA640900, AW301538, AA654968, AA366035, AF177861, AI648558, AI254649, AI792580, AI345241, AI792510,



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HCUDX89	9249	974483	1 - 571	15 - 585	N88601, AA247827, N84048, N84855, N83168, AA095359, N83992, N83991, N89520, AA096046, AA093224, AA247964, H58760, N88782, AA096066, AA471338, AA095641, N84718, N86694, N83993, N84712, N55698, N88518, N84830, N84829, N87989, N87898, AF039698, U48696, AF103726, S78798, AR066487, AF102850, AF045432, AJ243486, AF032922, and U39066.
HCUDU18	9250	850099	1 - 247	15 - 261	AA167604.
HCUDQ81	9251	902510	1 - 317	15 - 331	AL138265, AL046409, AI284640, AW193265, AI334443, AI963720, AI431303, AI350211, AI754658, AI613280, AI281881, AI133164, AL046205, AI270117, AI345654, AA665330, AI110770, AW327868, AL119691, AA521323, AW303196, AW274349, AW419262, AA720702, AA581903, AL038785, AW410400, AW301350, AI954260, AL041690, AI570261, F36273, AA610491, AA521399, AL042853, AL138455, AA847499, AW021207, AI679782, AL120687, AI537506, AI358571, AL037683, AA394271, AA490183, AA526787, AI254615, AW265385, AA551503, AW029038, AI890918, AI355206, AW162049, AI292931, AA649642, AA584201, AI339850, AL044940, AW088846, AI345518, AA630925, AL040921, AI962050, AA587604, AA491814, AI633390, AW269488, AW023672, AW088202, AI434695, AW088616, AI589230, AI696962, AI149478, AL048925, AI061334, AI053672, AA631507, AW069769, AW238278, AW073470, AA491284, AI471481, AI469968, AA654771, AI289067, AW407578, AI567674, H71429, AI192631, AI610159, AI623720, AW304584, AW276827, AL042420, AW265393, AI610920, AW438643, AA613227, AI368745, AW406755, AI345681, AI345675, AA857486, AI708009, AI890348, AI625244, AI473943, AW439558, AI918421, AA623002, AA482768, AW028392, AI732764, AA826303, AA569471, AA661948, AA533725, AI341664, AW193432, AI358229, AW008952, AA713815, AW028429, AI688846, AW103509, AA877817, AA502103, AW020340, U51696, AL079645, AA682912, AW071196, C06327, AI799642, AI375710, AW080134, AI821271, AA678436, AI904894, AW166815, AL046898, AI307201, AI064864, AI133102, AI919265, AI749559, AW261871, AI005388, AA587256, AI049722, AL044858, AI085719, AW238583, AW083402, C05755, AA468131, N66026, AI619997, AA610493, AA469451, AA493708, AI305766, AL038705, AI801482, AL120674, AL046457, AI251002, AI587583, AI587565, AA908687, AA522942, AW302013, N35896, AI679132, AI687343, AW072923, AA601388, AI365988, AW104748, C75026, C06458, AA747276, AW270270,

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HCUDQ45	9252	881366	1 - 577	15 - 591
HCUDN89	9253	811185	1 - 315	15 - 329

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HCUDN82	9254	779978	1 - 429		15 - 443	T63603.
HCUDN71	9255	862116	1 - 381		15 - 395	AA278703, and AW292815.
HCUDK08	9256	959679	1 - 395		15 - 409	AI629017.
HCUDI17	9257	664109	1 - 214		15 - 228	AA578621, AA453558, AI243486, AC005696, AF196969, AC006211, AC005231, AL022476, AL121603, AC004805, AC004643, AC002996, Z93016, AC005295, AC006126, AC007226, AP000042, AP001069, AP000031, AC005005, AC004448, AC002302, Z82173, AL022312, AL023882, AC002073, AC005971, AL035423, U57833, and AL050348.
HCUDG26	9258	681985	1 - 419		15 - 433	AA086020.
HCUDD07	9259	953588	1 - 346		15 - 360	AL117375, AL133163, AC006512, AC006241, AC005225, AL050348, AC007240, AC006450, AL034417, Z98200, AL035413, AC005015, AC004973, AC005513, AC004912, AC005519, AC005003, U07563, Z85987, AP001054, AP000343, AC008134, L78810, AC005006, AL109984, AC005697, AC005300, AC004882, AC005399, AL133371, U91321, Z97054, AC006946, AB001523, AC005081, AC006465, and Z84466.
HCUCCK58	9260	850117	1 - 253		15 - 267	N78946.
HCUCJ14	9261	659221	1 - 490		15 - 504	W87347, T86628, and AW044560.
HCUCI23	9262	676276	1 - 196		15 - 210	AA021595.
HCUCH29	9263	608615	1 - 680		15 - 694	T03576, AA515915, AI351839, AF196971, AC002425, AC004859, AL096701, AC004216, AC005049, AL034548, Z97054, AC006449, AF001552, AC009516, AC005844, AF196779, AL096774, AL109758, AC002544, AL023807, AC004079, AF111168, AC004999, AC002369, AJ246003, AC006064, AC012384, U47924, AC007021, AC005081, AL022320, AC006120, AL121603, AC006088, Z84469, AC005529, AF045555, M89651, AC005702, AB023048, AF118808, Z83822, AC004882, AC004019, AF111169, AC005082, Z85987, AC007055, AC003043, AC007216, AC002551, AC004491, AC007842, AC004253, U91323, AP000553, AC006430, AC005666, Z97630, Z83844, AC004526, AC004876, Z98742, U95742, AL031733, AL079342, AC007277, AC005399, AL121653, Z85996, AC005619, AL109827, AL022165, AC004150, AL049636, AC004383, AF196972, AP000134, AP000212, AL035086, U95740, AC000052, AC002115, AC005620, AP000501, Z99716, AL121658, AC002477, AC002288, AC007388, AC004222, AF134726, AC005011, AC006512, AL132987, AC005527, AC006344, AB026898, AL133163, AC004890, AP000689, AC005067, and AC004832.
HCUCG40	9264	800153	1 - 141		15 - 155	
HCUCG07	9265	953823	1 - 287		15 - 301	AA807580.
HCUCQD83	9266	781346	1 - 411		15 - 425	N29857.
HCUCD05	9267	932333	1 - 363		15 - 377	AA083732, AI968034, AI160994, and AA083733.
HCUBX45	9268	850122	1 - 497		15 - 511	AI014555, AI971212, and AI765152.

HCUBV91	9269	790368	1 - 431	15 - 445	AA055642, AA857295, and AC002433.
HCUBT35	9270	850126	1 - 312	15 - 326	N58798, AL472668, AL520984, AA295874, AA295865, AA496309, AA158240, AA908682, AA610822, AA552989, AI086495, AW247156, W44559, AA372231, AL049869, AL049591, AL109952, Z97053, AL136295, AC005377, AP000500, U91322, AC010205, AC005102, AL031428, AC006536, AP000512, AC008585, AC011456, AL139054, AC005839, L29074, AF205588, AC007676, AB023049, AP000402, AC008040, AL121658, AC005390, AF042089, AL031311, AL033547, AC007510, AC005332, AC002400, AC005179, AF207550, AL035587, AC004134, AL109628, AC004882, AC006115, AC005971, AC007051, AC006952, AC004017, AL021707, AC005305, AC005409, AC007229, L14561, AC005207, AC007055, AL020997, AL078602, and AC005288.
HCUBS07	9271	953861	1 - 386	15 - 400	W86764, AI908342, and AL033518.
HCUBP94	9272	574198	1 - 137	15 - 151	
HCUBP82	9273	526773	1 - 56	15 - 70	
HCUBP48	9274	577289	1 - 397	15 - 411	H93547, AI307499, and AL022171.
HCUBP34	9275	576462	1 - 370	15 - 384	AA420546, AA524800, AI284640, AI246796, AI733856, AI669589, AW023111, H94979, T05118, AW193265, AW237905, AW440935, AI249365, AI923052, AA525331, AA635433, AW069227, AI610159, AI366555, AA847499, AI624528, AA714110, AA747757, AA502991, AI277373, AI814820, AW328446, AA992126, AA651639, AI284543, T53128, AI270117, AA630854, AI350211, AI754653, AI278440, AW023975, AI003797, AA229005, AL039042, AL039041, AI250552, AI332615, R94909, AA570255, AI251034, AI345497, AI567391, AA632757, AA744018, AI310670, AI285651, AI251284, AI251203, F36273, H79308, AA493808, AW303098, AA311535, AA746911, AW265688, AL031282, AL022326, AP000501, X54176, AL049780, AC004125, D83989, AC007537, AC005932, AF121898, Z22650, AC003070, AC005772, AC005940, AC005368, U57006, U18392, Z83844, X54180, X55926, X55925, D87675, AC003041, AC004651, AB023050, AL020993, I51997, AC005391, U18393, AP000511, U57009, U18391, U18394, U57005, U57007, AL022327, AC006552, Z97054, AL034548, AC005261, AC004815, AC004886, Z84480, AP000553, Z97056, AL139054, AC006088, AC007371, AC003112, U57008, AC006261, AL035398, AL121769, AL121655, U91323, AP000355, AL035697, AL031255, AC004382, AF196969, AC005829, X55931, AC006257, AC008044, AC005071, AL021397, AC004893, AC006121, X54179, AC004985, AL031668, AL031276, AC005519, AL096701, AP001052, AL121657, AL049872, Z93017, AC009516, L78810, AL021918, AC004841, AP000350, AC005280, AL021154, AL022098, AP000089, AC007435, AL035086, AL121653, AC006077, U57004, AC004895, Z97630, AC004522, AC004655, AC006441, AL021453, AB001523, AC002395, AC004033, AP000142, AC000052, AC006511, AC005839, AF047825, L78833, Z84469, AC005859, AP000555, Z98200, AL109801, AL023375, AC007308, AC005747, AC002425, AC004583, AC010170, U67810, AC005257, AC007227, AC002365, AC004634, AL135744, AC003966, AC005288, AC012384, AC005620, AP000569, AL121595, AC005595,

HCUBP10	9276	961259	1 - 201	15 - 215	AC006312, AP000694, AL133163, AC004526, AC004491, AC006965, AC005409, AC005089, AC005899, AC006241, AC007151, AC004914, AC006137, Z97876, Y18000, AC005726, AC005694, AC007193, AF111170, AC000081, AC007057, AL021937, AC004973, AP000354, AC005057, AC005258, AP000009, AC005666, AC001643, AL049709, AC007055, U96629, AC005632, AL031311, AC004799, AC004805, AC004966, AL034429, AC004887, AC004821, AL033392, U80017, Z82195, U95090, AC002326, AL023775, AC004851, AC004813, AC009247, AL031295, AC007688, U47924, AC005663, Z95115, AP000338, AP001065, AL024507, AP000500, AC004765, AL021579, AP000104, AL049694, AL109984, AL117344, AP000692, AC002059, AL035685, AL034549, Z99128, U62292, AC005523, AL022336, AC005060, AC006449, AP000216, AC005529, Z73359, AC003007, AC003029, U82668, AC005740, AC009464, AL009181, U95741, AC005207, AP000503, AC004797, AL031602, AL049569, AL021546, AL049766, AC005102, AC005971, AC004099, AF031078, and AP000045.
HCUBO67	9277	526489	1 - 261	15 - 275	AI538236, H99700, AA757426, T62078, T06731, AL041375, AC007842, AC007199, AC005971, AC005529, AL109758, AC000085, Z83844, U47924, AP000689, AC003010, AC010582, AB003151, AC007376, AF111167, AC005899, AF030453, AC005031, AC004999, AL109985, AC005921, AC005081, AC005088, AC007541, AC002072, AC005527, AC002351, AF111169, Y18000, Z98304, AC007227, AC007537, AC005377, AC009275, AC007388, M30688, AC004382, AC007051, U78027, AC007308, AC002470, AC005777, AF205588, AL035422, AC007792, AC020663, AC007057, AL049872, AC002350, AL030996, AL021937, AL050348, Z94802, AF196969, AC005255, AC004033, AP000509, AC004264, AC002073, AC002519, AL121748, AL022327, X54486, AC005027, AC005500, AC006965, AC007384, AC004686, AL022316, AC006441, AC005265, AL031602, AC004217, AC005544, AL049712, AC006486, AC005531, AC005913, AP000067, AC005231, AL031577, D00591, AC008079, AC004865, AC005291, AC006241, AC002554, AL049760, AC004522, AC004706, AC004990, AL034376, AC005625, AE000660, Z86090, U91320, Z75407, Z82244, AC006327, and AC005082.
HCUBO67	9277	526489	1 - 261	15 - 275	AA533534, AA569471, AL434695, AW407578, T60681, AI801482, AA760839, AW408047, AA630672, AA502991, AI932599, F11718, AA224889, AW328202, AL048925, AI143051, F00564, AW270258, AW002350, AA829166, AC008115, AC005666, AC005800, AP000212, AP000134, AP000251, L44140, AF001548, AP000030, U95742, AL049872, AC007216, AC002312, Z68870, AC006042, AC005839, AC005231, AC002430, AC004517, AC007421, AC002306, AC007384, AP000047, AC005482, AC005520, AC005632, AC016025, AL096767, AF053356, AC005808, AC003665, U63721, AL022316, Z94056, AC005921, AL035685, AC005288, AC006275, AL135744, AL031282, AC005057, Z97053, AC001226, AC005562, AC004967, AP000115, AC004878, AP000553, AC007934, AC004216, Z54334, AL049539, Z98742, AL096763, AL109798, AL021155, AL035659, AL137100, AC005387, AP000152, AC005667, AL035400, AC004813, AC005886, AP000252, AC005005, AC004596, AC004685, AF196779, AC004458, AC002300, U91323, AC004707, AL022302, AC006254, AC006285.

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HCUBM73	9278	577294	1 - 442	15 - 456	N23622, AL658817, and AL18024.
HCUBM49	9279	722190	1 - 638	15 - 652	W86247, W86303, and H70314.
HCUBL10	9280	968223	1 - 455	15 - 469	AI479068, F07564, H74309, H00154, N74027, AW084004, AA351808, N80390, D51809, AI473549, N47820, AA015948, AA454504, AA827383, AI699049, AL037006, AI004740, AA721998, AA757758, AA713735, AW151761, H83136, AI804519, AI902426, AL138065, AW193523, AA845825, T46997, AI745335, AA658179, H28464, H43183, AA385775, AA768179, N56933, C14599, AW029565, AW019964, AA736713, AI860535, AI476460, AI143653, AI954464, AA662614, AI811319, AI039089, AA662989, AA326014, H47736, AA372231, H27788, AA652771, C14880, AA434346, AI357815, AI928890, AA482323, AI018726, H90845, AA427808, AA357979, AA653291, AI040273, AA297496, T03928, AA862029, AA126271, AA525407, T03401, AA831801, AI246061, D44998, N70027, AA832016, N75708, M78131, AI889426, AI819391, AA513884, AA340035, H77442, AI123398, AA371410, AA506952, T69899, AA741301, AA678616, AI131261, AA569220, AI583801, AA515351, AI683019, AA595656, R87135, AA218874, AA084950, AI798242, AI254781, T60940, AI219606, AI739125, AW069273, AI871691, AA665304, AA774006, AI207476, AA083681, AI088903, AA368201, N20034, AA636102, AA083839, AA847570, AA077796, AA533660, AA515172, T40550, AL039930, AA483043, AI829480, AA714073, AA744095, H61201, AW073498, AL118912, AI929410, AI753672, AW068580, AA827281, AA384911, T39390, AP000692, AL096701, Z94721, AC006332, AC000353, AC003026, U62293, AC005263, AL133245, Z83826, AL031597,

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HCUBI45	9281	723364	1 - 385	15 - 399	R94226, H60821, F27393, and AW182343.
HCUBG69	9282	757752	1 - 243	15 - 257	<p>AL357974, AA746939, AA564682, AA804862, AW268314, AL732171, AA564510, AL032114, AA583390, Z73359, AC005837, AC006449, AC000025, AC005722, AC009516, AF196969, AL035086, AC005844, AC005527, AC002425, AL096701, AC007226, AC004520, AC009247, AC007546, AC007731, AP000556, AC005500, AC005632, AC007676, AC004967, Z95115, AC004067, AC005231, AC005280, AF001552, AC005015, AC006026, AP000557, AC002470, AL034417, U95742, AL031311, AC006064, AC002551, AC004883, AC007386, AC005332, AC005529, AP000501, AF111168, AC007216, AL049766, AC004491, U96629, Z82190, Z93930, AC005412, AC005399, Z83840, Z98051, Z98200, AC002070, AC005839, AC004815, AC004672,</p>



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HCUBG43	9283	576468	1 - 369	15 - 383	AC005264, AC005899, AL079342, AC005089, AC004383, AL022336, and Z85987.
HCUBE89	9284	785987	1 - 525	15 - 539	AL540121, AA243711, and AA233056.
HCUBE49	9285	723175	1 - 196	15 - 210	T58148, and AW059603.
HCUBE22	9286	409828	1 - 714	15 - 728	R10475, AA682937, AA601674, R31425, AA689285, AI783581, AW190781, R06346, AA922351, R10346, AA507745, AI567833, AW008089, AI345366, AI310873, AI189682, F31380, AW082559, T39596, AA654661, AW410354, AW250983, AA664942, AI270019, AL041894, AI696854, AA843779, AW103406, N22037, AA658327, AL135262, F18721, AI468971, AI050050, AA527602, AW404225, AA444166, AW302048, AI910608, H68563, AA837642, AA728812, AA583381, AA484639, AI114827, T62614, AI590906, AI335995, H58883, HI7602, AA631480, AI630176, AA912287, AA708108, T11828, AI253376, F18553, AA633762, AA594072, AI206841, AI909130, AI216990, AI537356, AA847121, AA565585, AI591375, AI801479, AW020992, AI682665, AI954125, AA582463, AA832175, AA862243, AA527727, AI800180, AA351003, AA985243, AA601356, AI858691, AI580250, AA504694, AW168420, AW188662, AA427470, AL109801, U47924, AL049694, Z68323, AC006112, AC007066, AC005067, AC006512, Z99497, AL034548, AP000300, I56088, AF141308, U89337, AL022163, AL035462, AC004222, AP000146, AC007546, AC005399, AC005933, AL008732, AL021878, AC003071, AC004526, AL030995, AC006511, AJ009610, AL121657, AP001060, AC004690, AL031672, AC004884, AC006312, AP000113, AP000045, AC003049, AC007666, AC002563, AC008134, AL096791, Z69705, AC004754, AP000246, AL117352, AC007277, AC004106, AC005839, AL049765, AC007421, AP000208, AP000130, AF050154, AL031848, AF207550, AC006946, AC005796, Z84480, AL031433, AL031584, AC005725, AL035698, AC007227, AC009247, AC002527, AL080243, Z81450, AP000247, AL079342, AC004652, AC006947,

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HCUBB68	9287	752247	1 - 596	15 - 610	N73144, NS3783, H78605, AA354792, AA114131, AA642051, R91175, H78687, N94134, AA179974, AA131083, AF155118, AC007731, AC005500, AC007536, Z97192, AC004526, AC006064, AC004702, Z82179, AC011592, AC007276, AC005284, and AC002064.
HCUBA93	9288	792515	1 - 514	15 - 528	AA190994.
HCUAZ01	9289	917266	1 - 325	15 - 339	AA908349.
HCUAW03	9290	924897	1 - 414	15 - 428	AL216081, AF150368, and AW264157.
HCUAP34	9291	706426	1 - 204	15 - 218	T95118.
HCUAN95	9292	796010	1 - 224	15 - 238	AL601207, AL225250, and F03622.
HCUAN89	9293	574275	1 - 129	15 - 143	AL672824.
HCUAN53	9294	728364	1 - 151	15 - 165	AA299020, AL459177, H70146, AF196969, AC007382, AC005088, AL133163, AL031668, AF030453, AL035086, AL135744, and AP000553.
HCUAM65	9295	887470	1 - 509	15 - 523	AA527109, F32749, AC006064, AC005156, AC003108, AC002477, AC004834, AC002425, AC005011, Z74739, and AC008079.
HCUAL33	9296	702677	1 - 345	15 - 359	T86948, AA677953, and AA778938.
HCUAG10	9297	968229	1 - 154	15 - 168	AA150568, and AC005781.
HCUAF80	9298	862171	1 - 256	15 - 270	AA621980, and AA621989.

HCUAF01	9299	850153	1 - 405	15 - 419	AL080243, AC005971, AC004216, Z85987, AL117258, AC005581, AL031659, AL049636, AL049569, AC004491, AL133163, AC005086, AL008721, AC004534, AC005089, AC005229, AC002350, AL031255, AC007546, AC012384, AL096791, AL034420, AC005702, AL034429, U91323, AC007688, AC005972, AC006211, AF047825, AC008119, AC006966, AF196779, AF001552, AC007193, AC008115, U91321, AC003035, AC002994, AL035249, AC004638, AC005237, and AL121652.
HCUAA92	9300	792947	1 - 585	15 - 599	AA017432, AL190211, AL168308, AL148392, AA206862, AL361394, AL761755, AL817338, AW005028, AL433437, AA243557, AA954313, W31550, C21014, AC005410, and AC005209.
HCPOP90	9301	862572	1 - 625	15 - 639	AA593533, AL284640, W95976, AL754955, AL431303, AL046409, N75702, AL610159, AW406755, AL281881, AW303196, AL270117, AW193265, AW301350, AL613280, AA828704, AA526787, AL350211, AL149478, AW274349, AL679132, AL053672, AL619997, AA177061, N53150, AA535661, AW088202, AW276827, AA469451, AL305547, AW021583, AL041706, AL570261, AL744995, AL334443, AL345654, AW029038, AL537955, AW193432, AL962050, AL249997, AL696793, AA587604, AL471481, AW148792, AL688846, AW265385, AL339850, AW438643, AW162049, AW261871, AL929531, AL085719, AA720702, AL367975, AA758934, AW270270, AL634384, F36273, AL370074, AA525190, AA491762, AA708678, AA826303, AL821271, AL564496, AW276435, AW073470, AA984708, AA507547, AA367986, AL457397, AL919265, AL732120, AL307201, AL041690, AL917271, AL298710, AA584201, AW072923, AA629992, AW238278, AW188484, AL192631, AA482711, AA649642, AL499938, AL499503, AL138265, AW162489, AA657835, AW157005, F34498, AL801591, AA491284, AL358501, AL871722, AL434695, AL037683, AL289067, AA514737, AL446464, AL375710, AW408643, AA126051, AA126035, AL138455, AL799642, AL200051, AA130647, AL370094, AL564185, H88666, AA847499, AL038606, AW169537, AA665330, AL047643, AA682912, AL587583, AW340844, AL679782, AL358571, AL587565, AL143242, AL246796, AL590772, AL041619, AA559290, AL046205, AL254615, AL312309, AW089322, AW339568, AA577906, AL379719, AL038785, AL754658, AW072587, AL719805, AL287651, AA515751, AA244357, AL044940, AW083402, AL357288, AA908687, AL133164, AA992126, AW406162, AL761471, F29702, AA488746, AL076616, AL537506, AL184226, AL110770, AA226715, AA837084, AL341664, AW168342, AA362573, AL334435, AA515905, AA613345, AL148277, AL042853, AA486559, AW020992, AW270382, AA350859, AL355224, AA426277, AL267818, AL733755, H93144, T07451, AA613227, AA502155, AA551503, AA654771, AA985038, AA653618, AA557686, AA490183, AA502866, AL246119, AA630362, AL358431, AL064864, H49822, AA084070, AA730362, AL539563, AL625244, AL282832, AL119691, AA856954, AA133333, AA483223, AL286356, AA581903, H52161, H00934, AL674873, AA503473, AL120687, AL291124, AA669840, AL282310, F03525, AL168185, AA631507, AL135724, AA348311, AA579179, AA601388, AW410400, AA610491, AC005785, U18391, D83989, U18394, U18399, X55931, U57009, U18395, X55925, U18396, X54181, X54175, X55926, X54180, U18393, I51997, U18392,

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HCFO025	9302	678200	1 - 543	15 - 557	AA234280.
HCFO001	9303	916687	1 - 410	15 - 424	AA776383, AA429932, AL035454, AC005736, U91326, AC006312, and AL034420.
HCFO45	9304	850372	1 - 979	15 - 993	AI122618, AC004815, AP000010, AC005255, AC004812, AC006974, AL049691, AL031289, AB023049, AC000397, AC006344, AC006312, AL022313, AL035685, AC003043, AC005383, AC006966, AC004686, AL109984, AC000353, AC006205, AF196779, AC007664, AL009174, AL121825, AC005346, AP000260, AC004491, AC000052, AC003102, AC008033, AL023807, AL049709, AC004876, AC004150, AC004638, and AC007637.
HCFOF34	9305	955905	1 - 441	15 - 455	AI469974, N64084, AW249948, AI889301, AA858354, F33853, AA621968, AI344766, AI887574, AI340954, AI017298, AW087878, AI951753, AW001459, AI130844, AI610421, AI859074,

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HCFNQ62	9306	745755	1 - 470	15 - 484	W84708, AI936823, AW137975, N68257, AA443187, AI417796, AA657780, H89014, H88792, AA586672, AL044918, and AL117474.
HCFNP09	9307	961149	1 - 659	15 - 673	AI824052, AA036889, W81555, AI694971, AI863745, AI864321, and AA036888.
HCFNJ34	9308	485822	1 - 503	15 - 517	AW007318, AI949612, AI497946, AI628977, AL119391, AW392670, AL119443, AL119497, U46351, U46349, U46347, AL119324, AL119319, AL119522, AW363220, AW384394, AL119483, AL119457, U46350, AL134527, AL119484, AW372827, AL119444, Z99396, AL119439, AL119363, AL119355, AL119418, AL119401, U46346, U46341, AL119341, AL119335, Z84480, AC004609, AC006313, AR060234, AB026436, AR066494, A81671, and AR054110.
HCFNG63	9309	745148	1 - 232	15 - 246	AA515905, AA507824, AI355206, AW023990, AA603445, AA580808, AI732120, AI284640, AA226305, AW276435, AW021583, AA658362, AW238278, F34498, AI860020, AA856954, AA613227, AI537955, AA680243, F01314, AW089322, AA908468, AA502155, AI133164, F17891, AA551553, AI564454, AA847622, AI863054, AI243584, AA092602, AI358571, X75335, D83989, X55923, U67829, U67827, M87922, M87891, AF077058, S42655, AC005523, AC005050, Z31000, AL023575, AL024507, AP000023, AC004257, AL133353, AC003663, M87919, AL035398, AC005288, AC008033, AL008718, Z98946, AL022324, AL031321, AC007406, AF010317, AC007731, AP000039, AP000107, AC005500, AL049692, AC006275,

						AC006480, AC005944, Z69707, AC005387, AC005081, AC007226, AL096791, AL050341, AF196779, AC004408, AF134726, AL020993, AL008726, AL078475, AC003030, AC005102, AC005730, AL031295, AC007676, AC008079, AB026584, AC007227, AC018633, AC004638, AC005832, U49740, Z98752, AF106202, AP000298, U96629, AC005529, AC005300, AC006004, AL022170, AL080317, AP000025, Z93241, AC008372, AL049776, AC004531, AP001114, AC009516, Z84572, AP001065, AC000085, AP000694, U69570, AC007191, U91326, L26261, AC007386, AC006271, AL008719, AL022237, AC004837, AL008635, AC004230, AC003043, Z83822, AF039907, AL021878, AC005231, AF038458, AC005745, AL096703, AF109907, AF141309, AC002350, AC005218, L34079, AP000280, AC000353, AC004492, AL080242, AC004019, X71875, AF001549, AC005332, AC004856, AC006312, AC004652, AF015156, AC004821, AC003684, AC004675, AC002126, AC006512, AL132777, AC004039, AC005331, AC005703, AL109914, AL031280, AC002558, AP000557, AC005004, AC005754, AC006511, AL121754, AC004034, AL031577, AL096774, AL022163, AL008715, AL009181, AL096843, AC007919, AB003151, AC005625, AC004475, AC006536, AC004703, AC005399, AL031282, and AC012085.
HCFNG10	9310	848225	1 - 1653	15 - 1667		AA452506, W94343, AA488471, AA761766, AI271809, AI673242, AW295352, AA211131, AW084027, AA211130, W94373, AI972578, AI675734, AA211710, AI657152, H93180, AA442937, AW197446, AA436769, AA385636, AA033875, AA421160, AI650629, AA417770, AA306761, AI054242, AI261197, AA829487, AA417236, AI353132, AI053468, R29693, W94372, AW020931, AA715307, AA809974, AI540890, AL121270, AW020592, AL121328, AW019988, AI923509, AW023863, AW021178, AW020425, AI879064, AI624543, AW189802, AI557238, AI525653, AW020406, AW021777, AW021693, AW019985, AW020328, AW022826, AW022299, AI064830, AW023351, S68736, and A91160.
HCFNB09	9311	625697	1 - 191	15 - 205		H49917, and AC007537.
HCFNA77	9312	874777	1 - 265	15 - 279		AL041196, AI347284, AA861637, W02835, AA863177, AI818167, AI248206, AA987274, AA338877, AI199674, N29825, AW131788, AI953166, AI567464, AI025214, AI885412, AA568780, AI174734, AW138007, AW007757, AA193266, AW027175, AA614090, AL046529, AW058096, AI278213, AW169713, AI571295, AW083404, AI873719, AA864580, AI471327, AA603136, AI383280, N70535, AA255990, AI091040, AI763223, AA761693, AA309912, AA826815, W05581, AA229402, AA229290, AI631521, AA861300, AI969567, AI373276, AW059713, AA256252, AW020876, AI376180, AI468873, AW029401, AW081231, AI923768, AI619817, AI373622, AI828734, AW008737, AI627893, AW243619, AI354627, AI610115, AI918376, AI874243, AW084117, AI932818, AI633308, AI742068, AI738660, AI540474, AI679211, AA848053, AI922278, AI334820, AI570989, AI619485, AI583308, AW055081, AI247298, AI933783, AA766618, AI583065, AI828806, AL122045, AF047443, AL122049, A57389, U94316, AL080156, E05822, S61953, A27171, AL133049, U49434, AF118070, AL137539, AL133624, AC007458, AL137300, AF182215, AI131955, X95876, A65965, D00174,

HCFNA64	9313	850391	1 - 523	15 - 537	A65943, U75378, AF113676, AL049465, AL122098, Y08616, S68736, AF085809, AF108357, X72387, AC004987, AC005156, AF012536, E15582, AF084644, AF084645, AF106934, AC005876, AL080074, AL117432, AL137556, I33391, and AF017152.
	9314	671021	1 - 244	15 - 258	
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HCFMZ90	9315	922112	1 - 867	15 - 881	AA099896, W39462, W93311, AA704134, AA102091, AA934684, AA570036, AA973597, AL984459, AA503779, AW073912, AA808602, AA149171, AL984559, AA832230, AA374289, AA651931, AI826677, AA149172, AA715137, W44955, AA046081, and AI377362.
HCFMW71	9316	920506	1 - 631	15 - 645	AI923217, AI814569, AI804682, AI762903, AI804663, AI143304, AI082030, AI139520, AI911904, AW274978, AI183410, AW450838, AI216343, CI5320, W93273, AI918971, AA680119, AI823928, R92413, W93272, R92414, T96093, AI216344, T51116, T96094, T51024, AI422647, AI869077, R42713, C00216, AI741425, AI936703, and AA197141.
HCFMU01	9317	916695	1 - 548	15 - 562	AA736920, AA731293, AJ243231, and AI369520.
HCFMP46	9318	463278	1 - 565	15 - 579	AA243868, AA455601, N53291, AA678242, and AW363661.
HCFMO47	9319	881505	1 - 357	15 - 371	AF131284, and AB021227.
HCFML02	9320	920349	1 - 613	15 - 627	AW207866, AI199278, U63312, and U81833.
HCFMJ37	9321	955281	1 - 644	15 - 658	II17763, AL038768, AL035739, AA084554, R52491, H16532, AI750581, AI903894, R21494, Z41981, R13337, AA322574, AA448043, T26420, AA461375, AI903843, AI792383, and AF161445.
HCFMH46	9322	719113	1 - 342	15 - 356	AW239548, AW373232, and AA325059.
HCFLY85	9323	909182	1 - 508	15 - 522	AI340241, AI740877, AA262686, AI949440, AA011068, AA011069, AA281890, AA283910, AA527101, AA250824, AI340240, and AA255646.
HCFLY53	9324	727465	1 - 616	15 - 630	H93046, AA897108, AI652046, T88896, N68615, AA761626, and Z82188.
HCFLY08	9325	959620	1 - 926	15 - 940	AA485570, AA485409, AI458623, R22065, AA639708, AL134139, AL031678, AC004491, AC004985, and Z99716.
HCFLV30	9326	692781	1 - 448	15 - 462	T89518, N91297, R05742, N78236, AA281577, AA505098, and AA282794.



HCFLT86	9327	785560	1 - 546	15 - 560	AA002042, AA001671, AA001672, AA694015, AC009263, and AR068552.
HCFLM03	9328	850403	1 - 488	15 - 502	T64674.
HCFLI03	9329	850406	1 - 823	15 - 837	AA984238, AA525888, and AA525391.
HCFLK10	9330	964792	1 - 760	15 - 774	W31316, AA019148, and AC004706.
HCFLB24	9331	502414	1 - 421	15 - 435	AA568314, AA610433, AI090334, AI871691, AA629679, AL044339, AA515677, AA846923, AI799421, AI049701, AI368732, AA523833, AA173334, AL039309, AI751191, T08386, AW089016, AI821722, F11421, AI732162, AI57422, AW265688, AI049630, AI821172, AI125167, AA662614, F31811, AA663074, AL046746, AA984829, AI792063, AA706202, AA586646, AA130647, M78021, AA862029, AA229988, AW272640, AA610255, AA368012, T48809, AI130709, H96146, AI536858, AW089950, T41134, AI457389, AI537995, AI719142, AA158549, AI814682, AW190277, AI636734, AA564682, F31867, AI291439, AA524846, AW023111, AA481760, AA654482, C06028, AI302156, AA020882, AI054339, AA715351, H24957, AA728861, AA807704, AL079734, AI564301, H67064, AA878492, AI370170, AA557945, AI802526, AI783911, AI671077, AI114494, AL134332, AW166920, AA856817, W63553, AW151935, AI160786, AA434078, T17332, AA384064, AA599080, AW188742, AA323085, H40478, AA371580, R70883, AW419389, H43183, AA368329, AA569089, AI907046, AA126635, AI342677, AA598663, AI342786, AI300413, AW148775, AA326330, AA371410, AA102737, R83585, AW381823, AI376454, AA828463, D51877, H54601, T65895, AI431513, H58393, C18779, F08866, AW162750, AA595504, AI301373, AI929796, AA702618, AA357878, AA315361, AC005015, Z93016, AC005081, AP000512, Z83844, AC004458, AC004796, AC006966, AC004033, AC005189, AC006946, AP000547, D84401, AL035400, Z95116, AP000558, AP000501, AL139054, AL049776, AC005102, AL031666, AC002477, AC005519, AL031055, AC003070, AC005180, AL031281, AC005088, AC005529, Z98200, AL008725, AC003950, AL031311, AL021391, AC005089, AL034429, AC004884, AL136295, AC002301, AL031432, AC002312, AC007376, AC002300, AJ003147, AC003692, AC004815, AL096701, Z95115, Z68277, AC002425, AF111168, AP000067, AC005702, AL034417, AP000557, AC005046, AC005500, AL049869, AC004686, AL022476, U91326, AL008582, AC002550, AP000503, AL031587, AC005412, AC005280, AC005911, AC006251, AL031230, U85195, AC006241, AL049694, AL049636, AL109839, AL022329, AF134726, AC009516, AL109827, AC005193, AL031681, AC002565, AC002400, AC007386, AC005049, AL031280, AE000658, AC004650, AC004905, Z68870, AC004216, AC004791, AC005197, AC005332, AL031228, AC000353, AF030453, AC006064, AC006511, Z98304, AC007842, AC005520, AC002357, AC005839, AL050348, AC005094, AC002351, AC005696, AC005800, AF001549, AC005484, AC008009, AC002039, AC004953, AC005736, Z93930, U96629, AL020993, AC000379, AC006132, AF047825, AC004832, AP000065, AF196779, AC005209, AL034555, AP000116, AC003101, AC007546, AC004881, AC007160, AC006538, U82828, AP000553, AF196970, AP000689, AP000210, AP000132, AC004659, AL035458, U80017, AL121825, AF064861,

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HCFCDD43	9332	779327	1 - 216	15 - 230	AI826505, AI810842, AI970815, AW236631, AI400419, N66238, AA035566, and H96744.
HCFCV32	9333	850413	1 - 528	15 - 542	AL119497, AA362532, AC007425, AC004953, AP000311, AP000193, AC006014, AP000117, AC005251, AL080243, AC007999, AC006071, AF196969, AC005488, AC005659, AC004841, and AC002349.
HCFCP77	9334	772256	1 - 366	15 - 380	AI765256, AA806370, AA836325, AI590659, R39398, AA411920, AI807770, and T10620.
HCFCM75	9335	850435	1 - 453	15 - 467	AA513181, AA513141, AI917156, AA491814, AI754955, AI198376, AA714453, AA652764, AA581903, N25296, AI281881, AL133723, AI367497, AI061334, AW088058, AI246119, AW276435, AI298710, AI358343, AW301350, AW303196, AW274349, AI471481, AI357288, AA837677, AW057877, AL046409, AA515051, AA525190, AI610159, AW300625, AW338086, AI284640, AW406447, AI801600, AI624698, AI344844, FW166815, AA448231, AA452563, AW193432, AI287651, AI379719, AW303876, AL119984, F36273, AI350211, AA252763, F37169, AW419262, AW102955, AI431303, AA338486, AI375710, AI963720, AI279165, AI148277, AI580652, AW162489, AW270270, AI860020, AI613280, AI890923, AI610376, AI688846, AI053672, AW193265, AA503258, AW276817, AA557686, AI796627, AW104748, AW022379, AI355206, AW168342, AI830390, T40617, AW276827, AW162049, AI929531, AL041706, T08638, W95841, AI471543, AI887483, AI049634, AI049722, AA451612, F18974, AA340747, AL119691, AI697208, AI144330, AW029038, AI653886, AI469172, AA747472, AI814735, AI708009, AI566794, AA643962, AA302963, AA649642, AA810318, AL043721, AA348311, AI266576, AA350859, AI358571, AA917683, AI339850, W07122, AA229814, AI499938, AA610491, AI962050, AI251002, AA594145, AA229931, AW151896, AW008317, AI334443, AA720702, AI674873, AW339568, AI345654, AI133636, AW261871, AA664407, AI619997, AA225155, AA551575, T07451, AI886164, AI305547, AI249997, AI633007, AW080134, AL120687, AA608616, AA062722, F03097, AA364224, AA653618, F30933,

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HCCK25	9336	494159	1 - 529	15 - 543	AL042420, AL134524, AL590906, AL357823, AL284126, AL129746, AL792133, AL110844, AA632757, AL791913, AL961983, AL417469, AL923052, AW303872, AL369580, AL343169, AL358712, AL043351, AL037632, AL118573, AL167055, AC008115, U80017, AC000052, Z93930, AF196969, AC004019, AL021397, AF134726, AC004878, AL031283, AC002400, AC004522, AL022322, AC004765, AC006064, AL139054, AC008101, AC000134, AC007686, AC002519, AF190465, AC005288, AC002316, AC009516, AC005529, AC006001, AF129756, Z83844, AL135744, AC005484, AP000030, AP000553, AL031284, AC004876, AL050348, AC002470, AC004963, AC006277, AL023807, AP000558, AL022320, AC005180, AP000251, AP000008, AC000025, AC005755, AL031848, AL035681, AC007066, AC005488, AC003982, AC005086, AC002425, Z99716, AP000248, AC004832, AL022476, AL020997, AL031311, AC004922, AP000131, AP000209, AP000691, Z93017, AP000704, AP000493, AC005295, AC007371, AP000692, AC005102, AL035071, AL021393, AC005841, AC016830, AC009247, AL096774, AF053356, AC004967, U91321, AC006468, AC000353, AL021154, AC006965, AC002369, AC005786, AC005837, AL049874, AP000133, AP000211, AL050341, AC002350, AP000555, AL049760, AB003151, AL031295, AC004812, AL035423, AC009044, AL031680, AC002091, AC005015, AC003029, AC004217, AC004859, Z83822, AC005914, AC005736, AC005519, AC004598, AC004991, AL031602, AF205588, AC007537, AE000662, AC003102, AD000092, AC003101, AL009181, AC010206, AC007546, AL049589, AC004638, AC005514, AC005215, AC002544, AL049795, AC002115, AL021155, AL096791, AL031228, AP000088, AC007919, AC016831, AC006211, AF001549, AC002559, AC006013, U62293, AC007226, AC005527, U91323, U63721, AC005696, Z95113, AL049779, AC006312, AL022315, AL080243, AC004656, Z98051, AP000210, AP000132, AJ246003, AC007666, AC002984, AL022330, AC005821, AL035659, AL022237, AL021977, AC006130, AC004821, M63796, AC006014, AC005067, AC005274, AC005971, AC005666, AC005588, AP000510, Z97630, AC002301, U95740, AC004999, AC005071, AL035458, AC004230, AC005399, AL034429, AP000140, Z73417, AL035249, U91326, AC006117, AF111169, AP000104, AC005778, AL034417, Z98752, AP000556, AC005412, AC010205, AL031659, AJ003147, AL050321, AL121603, AC007842, AL031390, Z93241, AC005844, AP000112, AC006538, AC006101, AF118808, AC004000, Z98048, AC005480, AP000116, AC005081, AC005291, AF109907, AC008009, AC007425, AC005952, AL096773, AL035462, AF038458, AC007055, AC005031, AC007192, AC004858, Z97056, AF196779, AC004491, U91322, U07562, AL096712, AF217403, AL008730, Z85987,

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HCFCF76	9338	973808	1 - 636	15 - 650	AF078844, I33392, AF090903, AF125949, AL137300, AF104032, AC004485, AL050024, AL110196, X62580, AL080127, S78214, AL137556, A93350, AL133077, AF158248, A93016, AF119337, A18777, X82434, AL133113, AC016027, AF067728, AL133558, Z82022, AF153205, S68736, AL050393, AL133565, I00734, AF090934, Y16645, AL049938, AL137459, AL096744, E00617, E00717, E00778, AL133568, AL133014, AL137294, X98834, AL133560, AF111112, AB019565, AL080074, AF113690, AL133067, A65340, E15569, AL122121, Y11254, AL122098, AF113676, AL117432, AF113013, AF067790, AR013797, I26207, AJ000937, AR000496, U39656, AL137271, AL133081, AL137550, AL110221, S76508, AF030313, Y07905, AF032666, X83508, E12747, U49434, AF162270, AF118094, AL049466, A77033, A77035, AF087943, AL049430, AF113699, E02349, AL122111, AL117416, AF111849, AL122100, Y09972, AF125948, AF177401, AL122118, AF106657, A12297, X65873, AL137292, AF008439, A08911, X72889, D83032, X06146, AL080060, AF028823, AL133080, AL137538, AL117649, X92070, AL080137, AL133072, AL122123, U88966, AL137463, E02253, A08915, AF079763, AL137529, AL050146, Y10080, U35846, AL110222, A03736, AF113691, AF081197, AF061943, AF081195, and E03348. Z99396, AW392670, AW384394, AW372827, AL119443, AW363220, AL119497, AL119483, U46341, AL119335, AL119319, AL119457, AL119324, AL042975, AL037526, AL042965, AL119484, AL119363, AL119341, AL119391, AL119355, AL119396, U46351, AL119522, AL119496, U46350, U46349, AL119418, AL042970, AL042433, U46347, AL119444, AL134518, AL134538, AL043011, U46346, AL043029, AL037205, AL119439, AL119488, AL042995, AL142139, AC006947, AR060234, AR066494, A81671, AB026436, AR054110, and AR069079. A1637997, and A1634156.
HCFC10	9339	964782	1 - 493	15 - 507	AC005630.
HCFBX86	9340	844884	1 - 812	15 - 826	R53757, I186858, R92462, AI032557, and AJ238093.
HCFBQ30	9341	692787	1 - 538	15 - 552	H73824.
HCFBM75	9342	766599	1 - 440	15 - 454	H48509.
HCFBM41	9343	711631	1 - 760	15 - 774	AI052103, AA443680, R73756, and AL035593.
HCFBK28	9344	706243	1 - 399	15 - 413	AI479244, N62936, AW043736, N62922, AW070399, AI439134, AI087958, AI923614, AI042445, AI141286, AI240322, AW139229, AI167559, AI142623, AI654168, AW044610, AI370719, AA715102, R70258, AI184401, AA862632, AA033035, AA418550, and AA418648.
HCFBK04	9345	925601	1 - 729	15 - 743	R22358, R73854, T19084, AJ242972, and AJ242971.
HCFB151	9346	670066	1 - 534	15 - 548	AI692432, AI206257, W72986, W76185, AI797925, AI498429, AA888959, AI139097, D62001, AA506656, R14258, N49612, AA897171, and AC009464.
HCFA94	9347	698647	1 - 588	15 - 602	AAW419262, AI284640, AW021583, AI246796, AA831375, AI298710, AA649642, F36273, AI049722, AL041706, AA513141, AI446464, AA669251, AI707788, AW302013, F33121, AW193265, AA513181, AI827234, F33566, AA557686, F25276, AA441788, AA100599, AA084070, AA493708, AI434695, AA551575, AI624698, T40077, AA586458, T47588, AI144055, AI250019, AI291124, AI564185, AW131034, AI937850, AI266133, AI245679, AA340747,
HCFAZ12	9348	970609	1 - 333	15 - 347	

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HCFAZ07	9349	849823	1 - 522	15 - 536	<p>AA155821, AA608744, AI879998, AW168112, AI052703, AW104051, AW157334, W84527, AA648295, AW192895, AA861283, AA947742, AW057835, AI582368, AI193965, AI300565, AW009823, AW029295, AI348116, AA708118, AA577690, AA101195, AI016610, AA527861, AA480279, AI452699, AA669337, AA760760, AA744919, AW130090, AA831711, AI057288, AI494111, AI800064, AI862854, NG2094, W55920, AA043251, AA001852, AA292750, AI275625, N93127, AW007135, AW272692, AA160010, AW166814, AI198852, AI271553, AA484277, AA025382, AA971631, AI346774, N50975, AA088421, AI130684, AI354226, AA453035, AA984913, AA668696, AI090673, AW264660, AA152365, W15314, AA807549,</p>

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HCFAC08	9350	959714	1 - 277	15 - 291	Z43308, and F06087.
HCFAC38	9351	576723	1 - 563	15 - 577	
HBVAB02	9352	971578	1 - 371	15 - 385	AI290084, AW069571, AL045559, AI916323, AI920788, AI037725, AI979070, AA558973, AA805073, AI923608, AI026817, AI400065, AI142752, AI073801, AI983052, AI888249, AI814624, AI954566, AI634706, AI685954, AI826322, N32025, AI523819, AW193468, AA431425, AI471592, AA494404, AI913467, AA975219, AA134828, AW002764, AI435532, AW196856, AW167131, AW020997, AI872178, AW168867, AA953123, AI096566, AW439581, AI274717, AI589346, H29599, AI088270, AA777093, AW196804, AI080172, AW261884, AI654244, AI247070, AI174662, AI368857, AI859769, AI804043, N69326, AI800419, AI077452, AI000904, AA614709, AA932332, AI811787, N51228, AW173627, N67399, AA665721, AA872701, AA630621, W45368, AW339689, AA813724, AA431829, N69549, AA483167, AI167605, R38982, AL040955, AA946853, C15258, AA367583, AW020365, AA470959, AA470492, D60743, AI241864, AA599645, AA504467, AI582507, AI865471, AA908302, AI125505, AW270390, AI251461, AA976144, T90631, AI675925, AI094039, AA868559, AA350318, AI420632, AL044108, AA725887, AA912279, AL043485, AA483807, AA432375, W94957, AI473795, N89726, AI149616, AI677962, AA449963, AA435852, AI439074, AI375050, W94259, AI359458, AI422102, R16090, AI832410, AA350322, AI520933, AI372467, W94673, AW241206, N50917, AA962014, AA962188, T49442, AI076757, D59874, AI383209, AA694588, AI150484, AI954233, T65112, AW002717, AI270073, AA635251, N74638, F09484, H44439, R39314, AA134827, AI445189, W95853, T79742, W95599, W81307, AA729817, AA363740, AW162362, AI126993, C01293, AI203813, AW337288, AI280943, AW087446, AA461546, D61229, AA398843, AA738229, AA938675, C02201, AI783852, AL045344, D56705, D29216,



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HBUAG44	9353	716685	1 - 336	15 - 350		AL134194, and AA211828.
HBUAC23	9354	847698	1 - 342	15 - 356		H65948, and AA522538.
HBTAE84	9355	781946	1 - 387	15 - 401		
HBMXU73	9356	953898	1 - 687	15 - 701		AI912940, AI356880, AA768753, R38430, AW026385, AI094990, AA417714, AI521674, AI911847, H17932, AA603061, AA152297, AI469372, AI038106, R65634, N71126, AA602303, N47801, AI445560, H10196, AI566092, AA131931, N39095, N57531, AI537013, AI951484, AI972988, AI141578, N34391, AI867900, AA830221, AA058539, AW057639, AI703292, AI866150, AI933673, AI307808, AI129217, H11742, Z39045, T24056, F01755, F03814, R36084, AI471051, R51266, R42298, H07915, AA412728, F01735, AW170333, and C01600.
HBMXS23	9357	675254	1 - 442	15 - 456		T56858, H47055, AI097490, T48207, H47127, R06541, T48206, and AC000393.
HBMXL78	9358	738763	1 - 451	15 - 465		AA040902, W79933, AI818085, AI831014, AI819405, AI814284, AI570354, AW005883, N92092, AI373828, AA365266, AA705064, AI073849, AA150396, AW081533, N31954, AI078328, F19605, AA688147, N44237, AI814155, AA385643, W78108, AA934651, AA661822, AA448574, AI669184, AA719546, AA594574, W02992, AA035203, W46177, AI304898, AI042436, AI702857, AW300688, W46540, AA724939, N24291, AA862274, H47300, AA989294, H21424, AA935840, AI968456, R44002, W87615, AA302189, R32790, AI468314, H59434, AA156578, R94915, AI868335, AW277188, N69447, N34605, AA903411, AI754560, AA441863, AA449263, AL117548, and AF064084.
HBMXL41	9359	711608	1 - 452	15 - 466		R99651.
HBMXJ70	9360	757328	1 - 443	15 - 457		H64110.
HBMXG10	9361	968055	1 - 362	15 - 376		R13146, and AC006960.
HBMXF73	9362	764551	1 - 463	15 - 477		H71766, and AL050032.
HBMWX13	9363	955208	1 - 435	15 - 449		AI690702.
HBMWS75	9364	767440	1 - 425	15 - 439		R00589, and Z84467.
HBMWR62	9365	754059	1 - 466	15 - 480		AA179886, AI124981, R68627, and AL079296.
HBMWK06	9366	936088	1 - 236	15 - 250		AA608586, and AI863209.
HBMWI28	9367	685443	1 - 375	15 - 389		R11487, AA668261, R12375, and AA905206.
HBMWE35	9368	706034	1 - 645	15 - 659		AA001457, AA015999, and AF062922.
HBMVQ26	9369	546495	1 - 290	15 - 304		
HBMVO41	9370	712565	1 - 440	15 - 454		R60294, and AC005007.
HBMVI33	9371	702683	1 - 405	15 - 419		R18185.
HBMVG85	9372	575418	1 - 208	15 - 222		H08588, AW452797, R61253, AI460322, AI039491, AA416798, AA609458, AI867411, AI631600.

HBMVG18	9373	666855	1 - 571	15 - 585	AI206856, AI015080, AW004016, AI880436, ZA1596, AI928117, and AA774212.
HBMEV59	9374	933208	1 - 409	15 - 423	N80648, H82296, H95468, T96215, and AI630703.
HBMDV05	9375	932441	1 - 343	15 - 357	H77697, H77689, H77703, H69186, and AF165138.
HBMUW96	9376	574517	1 - 296	15 - 310	T73358, and AC006947.
HBMUW85	9377	783416	1 - 612	15 - 626	AL078644, and AC011311.
HBMUW58	9378	574513	1 - 202	15 - 216	R51759, AA035757, AA159960, and AF110908.
HBMUN03	9379	847787	1 - 478	15 - 492	AC007539, and AC006560.
HBMUL31	9380	456760	1 - 549	15 - 563	AA824413.
HBMUG59	9381	739509	1 - 497	15 - 511	AA429725, and AA281396.
HBMUG23	9382	425961	1 - 605	15 - 619	
HBMUD91	9383	789320	1 - 589	15 - 603	T84888, AA960882, AF051976, and AF144094.
HBMUB13	9384	950984	1 - 555	15 - 569	W01309, AA577113, AW292823, D20298, AI240027, F17130, T30300, AA744372, H75572, AW204120, and AA433861.
HBMTX71	9385	760605	1 - 420	15 - 434	H59274.
HBMTS23	9386	676310	1 - 385	15 - 399	R25927, Z45765, and AL008726.
HBMTM67	9387	847785	1 - 509	15 - 523	AA573319, AA634778, H56345, T92363, AI708233, H56344, T92415, and A90848.
HBMTD69	9389	754179	1 - 469	15 - 483	R24667, AI741100, AI689414, C14069, and AL031681.
HBMTB34	9391	706024	1 - 460	15 - 474	R34775, and AI150382.
HBMSX83	9392	863883	1 - 493	15 - 507	W21033, AI924201, AA766826, AA888820, AI814342, AW001123, AW134874, AI366738, AA670436, AI935359, H42655, AI198343, AA665651, H42654, AF077740, Z97630, and AF093403.
HBMDS02	9393	920096	1 - 429	15 - 443	W86935, W86925, and U95626.
HBMDN16	9394	661947	1 - 493	15 - 507	AA256753.
HBMDM25	9395	678127	1 - 586	15 - 600	AA626212, and Z63877.
HBMDL27	9396	683427	1 - 487	15 - 501	H06534.
HBMDI52	9397	727169	1 - 535	15 - 549	H00140, and AA284312.
HBMDI72	9398	879813	1 - 407	15 - 421	N52474.
					T63944.
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HBM CZ30	9399	692733	1 - 516		15 - 530	W38346.
HBM C124	9400	677209	1 - 338		15 - 352	
HBM C109	9401	625627	1 - 653		15 - 667	R78567, R22348, A1138749, A1432160, and A1378357.
HBM CS92	9402	792736	1 - 425		15 - 439	T89785.
HBM CS55	9403	731802	1 - 597		15 - 611	AA252232, H30735, H30819, and AF085888.
HBM CR25	9404	678164	1 - 988		15 - 1002	AA766345, AA258762, AA258882, and R87385.
HBM CQ95	9405	888393	1 - 359		15 - 373	
HBM CG84	9406	783043	1 - 407		15 - 421	T80409.
HBM CF20	9407	646279	1 - 595		15 - 609	AA160470, AA594945, AL047220, and Z98884.
HBM CB55	9408	731800	1 - 359		15 - 373	R09103.
HBM BX72	9409	9111168	1 - 887		15 - 901	AA077388, AL043009, AF039185, AW243793, AA974503, AL079869, AL044339, AA078338, AL079812, A1567674, AW008212, A1499938, AL039996, AL732120, AA908687, AW102955, A1679782, A1582769, AL041706, AA563818, AA255853, AW406162, AA287570, AA680243, AL044340, AA884598, T74524, A1356440, A1110760, AL121235, AA578590, AL038842, A1799642, AW089016, AA349366, AA806796, A1635279, A1434695, A1917156, AA643434, A1053790, AW302711, D82290, A1144081, A1313166, AW276586, A1708009, C06151, AW301906, AW342042, AL044940, AL048925, AW302753, AC004878, AC005081, AC004895, AC010205, AC004134, AC003682, AC005488, AC002350, AL023553, AC006057, AL022165, AC008101, AF053356, AC003104, AL080243, AL121653, AC005783, L78810, AC005015, AL139054, AC008079, AL133448, AC005088, AC005399, AL034423, AP000557, AF001549, AC007731, AL049869, AC007371, U85195, AF196779, AC004882, AC004814, AC005520, AL022322, Z99716, AC002563, AL121603, AE000658, AC000025, AL050318, AC004883, AL022238, AL022721, AL096712, U95740, AC007055, AF134726, AC004796, AC004815, AC004217, AC006130, AC005940, AC005531, AC006511, AC006014, AC006571, AL096791, AC007919, AC007227, Z97630, AC004000, AP000350, AL049712, Z84487, AC007066, AC002404, AF088219, AL050307, AC009247, AC006285, AC002115, AL008582, AC000026, AC003007, AC004019, AC004832, AL035458, AL135744, AF165926, D87675, AL080242, AC005500, AC004542, Z98051, AL021154, AC002543, AC002303, AL022323, AP000690, Z93241, AC005606, AC005067, AC007324, AC004033, U80017, AC004638, AF111168, AL049776, AC006006, AP000045, AC006111, AL022311, AC008040, AP000338, AC006251,

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HBMXB64	9410	746633	1 - 599	15 - 613	R64027, R39393, and AW262338.
HBMXB55	9411	668981	1 - 660	15 - 674	W02418, AW374577, H06101, AA478509, AA149906, N58721, T05803, AW374575, AW374603, AI038699, AF044588, and AR032001.
HBMBU52	9412	973805	1 - 541	15 - 555	AI962282, and Z98050.
HBMNB85	9413	783520	1 - 283	15 - 297	W79516, AA976168, AA344920, Z84487, AC009509, AC007546, AF031078, AF030876, AC004087, AC005520, AC007216, AC005479, AL035667, AC004531, AL133448, AC007993, AL121655, AL031584, U95742, AL031575, AF165926, AC005081, AP000553, AC005823, AL109984, AL133371, AL096701, AC004883, AC019014, Z99716, L44140, AC005837, AL132712, AP000030, AC004659, AL023807, AC005529, AC005231, AC006501, AC005015, AL031311, AP000555, AC005011, AF053356, AL022313, AP000134, AP000212, AF111168, AC007899, AC007687, Y10196, AC005225, U80017, AC000120, AC005037, AC006947, AL132826, AP000501, AC004263, AL034395, AF207550, AL078477, AC005512, AC006064, AC002476, AC004890, AC004410, AP000337, AC002470, and L78833.
HBMBI49	9414	723094	1 - 520	15 - 534	I183282, and H61030.
HBMBF89	9415	912789	1 - 938	15 - 952	AI524149, AA214070, N32863, AW269871, AI337580, AI567436, AI797310, AA913630, AI674495, AI201224, AI004609, AI685959, AW316868, AI374695, AW130375, AI420705, AI363214, AI201959, AW025086, N57161, AI718664, AA738168, AI991056, AI079888, AI923956, AW370538, AA557806, W88855, AI984189, AI376436, AI240957, AA780294, AI868941, W46418, AA350784, W88536, H57851, AI202868, T86691, N29741, AI358983,

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HBMBF78	9416	623421	1 - 950	15 - 964		AA683395, W39500, and AA159553.
HBMBE68	9417	879588	1 - 388	15 - 402		AA770612.
HBMBC66	9418	859500	1 - 339	15 - 353		W73386, and AI910369.
HMBB57	9419	734915	1 - 324	15 - 338		AW080136, AA648683, AI625125, AW193143, AA635976, AI064811, AA935848, AL037910, AA564865, AA627154, AW166653, AI932443, AA501614, AW302709, AA578231, AA491807, AA845804, AI565097, N68677, AI572115, AI302917, AA857381, AI560195, AL041375, AL040054, AA533344, AA515046, AA366716, AL047429, AI769271, AA229935, AI024339, AW028908, AI287706, AA757888, AI539530, AA508873, AI061313, AW020094, AA833896, AW117860, AA833875, AI249688, AC006023, Z84469, AC004019, AC005412, AL121603, AC006487, AP000509, AC004217, AP000512, Z98950, AP000359, AC008101, AC006077, AL035090, AC006285, AP000313, AP000013, AP000155, AC007285, AC005998, AF069291, AF003626, AP000050, AF067844, AC016025, AC006008, AL022476, AC005215, AF111169, AP000117, AL022316, AL022327, AL049759, AL132987, AC007096, AL132985, AF029308, AC004185, AL033527, AC010175, AC004087, AC000120, AC007536, AC002996, AL049829, AC005067, U63834, AL050321, AC001228, Z97876, AC004738, AC005358, AP000036, AL080243, M29929, AL035703, AC009263, AF111168, AC002110, U95740, AC006552, U89337, AC005225, AF165926, AC020663, AC003982, AF134726, AL022238, AC005243, AP000193, Z84487, AL031427, Z84466, AC004675, AC005914, AC006449, AC007226, AP000511, AC005399, AL031985, AC007934, AC006115, AL050308, AC005839, AF196969, U95742, AL023553, AF109907, AC004914, AC006111, AC002105, AL008725, AC005058, AC005191, AC003950, AL022320, AC003029, AC004686, AC004843, AL133163, Z93023, AP000047, AC007216, AC002430, Z83822, AP000432, AL034421, AC007384, AC004834, AC006239, AL034420, AC007664, AL121825, AC006312, AL031846, AF064861, Z86090, AC004875, AL008715, AL049539, AC004678, AC000052, Z85986, AL034423, AC006972, AC005726, AC003037, AC005944, AL008582, AC006146, AC006384, AC004531, AC003690, AF121781, AC005180, AC007649, AP000692, AC006511, Z94793, AL049694, U95743, AL139054, AP000038, AL079305, AC007199, AC007385, AC005089, AP000034, AC002073, AC004491, AC002470, AC008018, AC004893, AC005182, AC002477, AL117694, AL133245, AC005971, AC007324, AC004859, AC007308, AL022318, AF002223, AL034379, AL031282, AC004858, AF047825, AF038458, AC003682, AC008134, AL031597, AC005233, AC002395, AC004458, AP000115, AC004216, AC005632, AL035249, AC002551, AC006501, AC004000, Z82181, AF107885, AC006966, AC005088, AL009179, AF088219, AC006530, Z84480, AC005618, AC008079, AC005832, AC005800, U85195, AC002040, AF190465, AP000502, AC004996,

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HBMBB45	9420	578817	1 - 343	15 - 357			AJ242976.
HBMAC54	9421	930481	1 - 421	15 - 435			AF037641, and AA321292.
HBJNC01	9422	915970	1 - 352	15 - 366			AA737327, and AI433448.
HBJNB52	9423	726475	1 - 484	15 - 498			R93012, and AA856773.
HBJMW95	9424	797604	1 - 805	15 - 819			AA460141, AA460739, AA487420, AA487676, AI620475, AW014765, AA826244, AI807477, AI859817, AI888070, C01748, and AA487462.
HBJMW03	9425	921996	1 - 951	15 - 965			H19011, AA017590, H86398, AA969667, AA055983, and AL009182.
HBJMU53	9426	727987	1 - 458	15 - 472			H10282.
HBJMS40	9427	710880	1 - 371	15 - 385			N55533.
HBJMR59	9428	738615	1 - 622	15 - 636			H72483, AI125256, and C15483.
HBJML90	9429	787320	1 - 433	15 - 447			AI566099, AW027347, AI921989, AA769157, AA722358, N66761, AI696509, AI825693, AA651815, AI933564, D59982, D61092, AA860600, D59981, D61152, AI873970, AA831741, H02809, AA653665, and AL050064.
HBJML80	9430	775435	1 - 451	15 - 465			W17090, and AW022657.
HBJME11	9431	972939	1 - 457	15 - 471			
HBJMC69	9432	754875	1 - 290	15 - 304			N80651, and AC002400.
HBJMA80	9433	777456	1 - 425	15 - 439			H37828, and AA707167.
HBJLX09	9434	625319	1 - 428	15 - 442			T56980, AF178030, and AFI47313.
HBJLW74	9435	765352	1 - 398	15 - 412			AA290916, R00373, AW387125, AA449392, AW387122, and AL080141.
HBJLU36	9436	847851	1 - 426	15 - 440			H38564, AC005049, AC005245, AC006014, AC005488, AC006195, AC003043, AF001549, and AC005071.
HBJLK37	9437	849633	1 - 416	15 - 430			AA084033, AA126948, AA126949, AA070285, U67770, X02414, X63389, and AA070164.
HBJLR31	9438	900883	1 - 1440	15 - 1454			C14331, C14429, D59275, C14389, AA305578, D80227, D59859, D80164, D80378, D80195, D59467, D59502, D80038, D80269, D51423, D58283, D80022, D51799, D80166, D80253, D59619, C15076, D80210, D80391, D80240, D80043, D59787, D81030, D81026, D80024, D80212, D50979, D80193, D80196, D80188, AA305409, D80219, AA514188, D57483, D59927, D80366, D51022, D59610, D59889, D50995, D80045, D80248, AW177440, AA514186, D80241, AW360811, AW178893, D80522, D80251, D51060, C14014, D80133, T03269, AW375405, AW179328, C75259, AW179020, AA809122, C14407, AW179023, AW366296, AW378532, AW377671, AW360844, D80268, AW360817, AW375406, AW378534, AW179332, AW377672, AW178905, AW177501, AW177511, C05695, D80302, AW179019, AW178762, AI557751, D51250, AW352171, D80439, AW377676, AW178906, AW352170, AW177731, D80132,

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HBJLF04	9439	614915	1 - 323	15 - 337	AA192415, AI216292, AW151132, AA573503, AA827164, AI207431, AF069506, and AF070643.
HBJLE70	9440	847853	1 - 993	15 - 1007	AI720923, AI628097, AI149416, AI432468, AI038395, AI360839, AA235040, AA010019, AW104170, AI266742, R80513, AA954623, R80407, H81294, AA235207, AA992698, T98403, AA480593, AI352046, AA807246, AA010161, T98402, AW078986, AI572359, R64407, AI547277, and AC004148.
HBJKI77	9441	772000	1 - 683	15 - 697	AI763332, AI744915, W02174, W32586, and AL109627.
HBJKG07	9442	952843	1 - 806	15 - 820	AI739538, AC006140, AB023052, and AP000513.
HBJKF02	9443	919446	1 - 385	15 - 399	AA278175.
HBJKD77	9444	771975	1 - 393	15 - 407	
HBJKD64	9445	746398	1 - 341	15 - 355	AW162288, AI696793, F13749, AI431434, AI537538, AI358089, AW021116, AW157005, AA657835, AA508809, AW328331, AA130647, AI954525, AA992126, AI051037, AI028510, AI751162, AW271917, AI340641, AA728937, AI500552, AI821881, AI821918, AA865262, AA629412, AA829065, AA804925, AI566408, H90844, N67343, AW089589, N23260, H71678, D29500, AL046746, H79308, AI038936, F30251, AI291961, AI887716, AW192065, AI571656, AI309384, AI961536, AA714011, AI279417, AA644320, AI598060, AA669840, AI144036,

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				15 - 902	R77172.
				15 - 371	AA303007, AA630672, AA634147, N22465, AI249447, AA679532, AA478048, AI821670, AI357823, AA613249, AW274349, AI524360, AI254913, AI696962, N22023, AI590906, AW264934, AA012982, AA688359, AI791913, AW270258, AI792133, AW303196, AA169245, AA580808, AI821714, AA528554, AA631517, AL119552, AA188664, AW301350, AA631507, AA483771, AW304580, AA480574, AA112924, AL048135, H73863, AI580250, AW270270, AC006455, AL121754, AP000350, AC002425, AC004778, Z83844, AP000155, AF111168, AC002540, AF190465, AL109798, AC007312, AL121655, AC004859, AC006077, AC002369, AC004876, AC002126, AP000151, AP000009, AC007686, AP000501, C002472, AP000690
HBJKD60	9446	740171	1 - 888		
HBJKD50	9447	724159	1 - 357		



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HBJKD49	9448	847857	1 - 413	15 - 427	
HBJKD40	9449	710931	1 - 351	15 - 365	
HBJKA77	9450	771982	1 - 552	15 - 566	AA256446, AI806202, AA746104, and AA811237.
HBJKA01	9451	916077	1 - 528	15 - 542	AI445151.
HBJJX53	9452	835733	1 - 379	15 - 393	AA477047, AW383764, AA321993, AA309810, W25768, AA465618, R24995, W07130, R50327, AA368102, N58603, AA356448, AW015964, W69552, AI791923, AA525463, AA526678, AI792408, AC005071, AF161081, and AF161080.
HBJJT12	9453	894345	1 - 604	15 - 618	AA113985, AA010096, AA333937, and U26150.
HBJJN02	9454	919371	1 - 555	15 - 569	Z78294, AA808842, AA715173, AA715075, AC005102, AC006449, AC005697, AL031311, AC007277, AC004686, AC009247, AC006211, AL096701, AL080242, AC004125, AC005914, AF207550, AC004659, AC005746, AC004491, AC006947, AL023879, AC006487, AL020997, AC005940, AC004827, AC006115, AC016025, AC005189, AF196972, AF109907, and AC007057.
HBJJL10	9455	937583	1 - 201	15 - 215	AA285172.

HBJJE44	9456	716409	1 - 564	15 - 578	AI142126, R54554, H24334, AI142097, and AW374108.
HBJJA32	9457	699059	1 - 695	15 - 709	AI820773, H30102, H39985, H21775, AI668592, AI821454, R49787, H28487, and AC007200.
HBJJA01	9458	916078	1 - 1042	15 - 1056	AI088489, AI194062, AI123551, AA759303, AW028108, AI093432, AA836264, AA767044, AI274044, AI434773, AW135037, AI808043, AA806714, AW087576, AA883729, AA809688, AA847203, AI524547, AA865016, and AC004982.
HBJIL42	9459	597100	1 - 399	15 - 413	R35568.
HBJIL36	9460	861363	1 - 776	15 - 790	AI091292, AI005391, AA806165, AI002979, AI702990, AA158537, N54188, AA069178, AA091807, AA095638, and AC006146.
HBJILH60	9461	930448	1 - 517	15 - 531	AA729724, and AC006116.
HBJIF51	9462	725081	1 - 449	15 - 463	H69862.
HBJIF31	9463	697753	1 - 673	15 - 687	T79551, T86369, R98540, and T98454.
HBJIB69	9464	754891	1 - 531	15 - 545	H69017, and H69779.
HBJIA80	9465	784267	1 - 625	15 - 639	AA147107, AA425502, R79257, H03146, W58353, C19029, AA657402, AI050680, AA757308, AI963898, AA953652, AA369798, AI393329, U48339, T85056, and AA443785.
HBJHX73	9466	971377	1 - 1045	15 - 1059	AI148152, D51250, D80253, D80043, AW242597, D59787, D80219, D59275, D80227, D80240, D80210, D51423, D80134, D59619, D80193, D80391, AL039085, D80196, C14227, D80949, T23947, D59927, AL039538, AL039564, AL039156, AL043441, AL039150, AL038821, AL043445, AL039509, D80366, AL039108, T24119, AL039678, AL039074, AL038837, AL039625, AL039648, AL039629, D80168, T24112, AL037726, AL038531, AL039566, AL039109, AL040992, AL039924, AL039128, AL044407, AL039659, AL036973, AL039386, AL045337, AL037051, AL045353, AL036725, AL039423, AL045794, AL045341, AL039410, AL042909, AI535983, H00069, AL038025, AL044530, AL043422, T11051, D81026, AL043423, D80045, D50995, C14014, C75259, R47228, AL036418, AI535783, AW013814, AW452756, D59889, AW451070, C15076, AL037526, AL037639, D80022, D80195, AL036196, D80038, AL037615, AL038851, AL037082, T23659, D81030, D58283, T11417, T02921, D80188, D51799, D80378, D59467, AL036924, F13647, AL036117, AI557751, AL036767, T03269, AL036679, AL037601, AL036238, D80522, D80212, D50979, AL036190, AL036733, C14298, T48598, AL036964, Z21582, D59502, AA285331, C14429, D80164, AA514190, D59695, AL036158, D80166, AL037027, D59859, D80269, D80268, AL037054, AL037178, D52291, Z25782, D58253, AL036191, D80024, AL036765, AL036227, D57483, Z99396, D59610, C14389, D59627, D80241, D81111, AL036998, AI910186, AL037177, C14331, AL036207, D51060, H00072, AA305409, AL037021, AW178893, AL036174, D51079, AL037047, AW450376, AW177440, AL036139, D51022, AW179328, AL036167, D80014, AW178775, AA305578, AW378532, AL036132, D51213, AW352158, AW377671, AI905856, AW369651, D80251, D80064, D51097, AA514188, D80248, AW178762, AL037077, AW177501, AW177511, AL037002, AW360834, AI557774, AA514186, D80133, AW360811, T02974, D80302, AW352117, C05695, C14407, AW176467, AW375405, AW378540, Z25783, AW366296, D80132, AW360844, AW360817, AW375406,

					AW378534, AW179332, AW377672, AW179023, AW178905, D80247, AW179220, AL037679, D80258, D80439, AW377676, AW352171, AW178906, AW352170, AW177731, D59373, AW378539, AW178907, AW179019, AW179024, AL036858, C14077, AW177505, D80157, AW360841, AW179020, C06015, AW178909, AW177456, T03116, AW179329, AW178908, AW178980, AW135155, AW177733, AW378528, A25909, A67220, AR025207, X68127, A85396, A85477, A86792, D34614, U87250, A44171, AB012117, I18371, AR062871, AR037157, AR017907, AR062872, AR062873, AR067731, AR067732, A58522, A91750, A84772, A84776, A84773, A84775, A84774, A20702, A20700, A43189, A43188, AR066482, Y17188, AR008430, I68636, A02712, A95051, A95117, AR031374, A49700, AR031375, A58521, AR020969, X73004, A38214, I56772, I95540, AR018924, A63067, A51047, A63064, AR018923, A48774, A63072, A48775, AR068507, AR068506, AR015960, AR000007, AR015961, AR036905, AJ244003, AJ244004, AJ244005, I19516, A18053, I06859, A23334, A75888, I70384, A60111, A23633, A23998, A95052, A18050, AR007512, A98767, A93963, A93964, I63120, AR043602, AR043603, AR043601, I66494, I60241, I60242, A97211, Z96142, I00074, A58524, A58523, I92483, AR038286, I66495, AR054109, I66498, I66497, I66496, I66486, I66487, A64081, A24783, A24782, I03665, I03343, A81878, I03664, A15078, E00523, V00745, AF156296, AR036903, D28584, AR022240, A11245, A02710, E12615, AR035193, A92133, E14304, A07700, A13392, A13393, I19517, A27396, A76773, E13740, A22413, AR027100, I28266, I21869, I13349, A49045, E16678, A82653, E16636, A93016, AF118808, A70040, A35536, A35537, A02135, A02136, A04663, A04664, I01992, I25027, I26929, I44515, I26928, I26930, I26927, A58525, I08051, I25041, AF156294, Y11923, E16590, AJ230933, I19525, Y11926, D88984, AR038762, I49890, I44516, AR000006, I00077, A92636, D14548, A58526, A91753, I00079, A51384, E03165, E02221, E01614, E13364, S70644, D26022, AF019720, A91754, AR035975, AR035974, AR035977, AR035976, AR035978, X58217, A18722, I84554, I84553, A60957, M32676, S78798, AF096810, A60968, AF096793, A60985, A60990, A60987, A62300, AF156299, A62298, D44443, AB007195, X15418, A97221, A80951, A10363, X67155, I07429, X73003, I08250, E04616, AF130655, S65373, A84916, A10361, AJ132110, AF156303, S69292, AF156302, AF156304, A78862, D89785, A91965, I07888, I69350, A04710, A20701, Y11920, AR027069, A52326, X13220, AR018138, AR064706, D88547, I03663, S83538, Y11449, A02711, X92518, AR063812, A04447, and A04448.
HBJHW74	9467	765380	1 - 435	15 - 449	AA716676, H60316, AI744524, AA836358, Z95116, AC005529, U91321, AC004832, AL034429, AL049874, AC005796, AC005527, AL049539, AL109758, and AL132777.
HBJHU20	9468	907575	1 - 544	15 - 558	AA179630, and AA176615.
HBJHO44	9469	882040	1 - 409	15 - 423	R96772.
HBJHI96	9470	828996	1 - 424	15 - 438	AA461038, AW151827, AI753072, AI042290, AI377120, AI364168, W68727, N30339, AI754813, AI203980, AA921913, AI754315, AW162458, AI076713, AI281214, AI457783, AW080473, AW338260, AW291880, AW337350, AI913188, AI243887, AA291380, H73392, AA702481,

					AI095058, AI439501, AW026886, AI831262, AI961995, T54990, AA578659, AW058379, AI921073, H58220, AA055896, T56868, AW073087, AA403311, R94192, AA410982, AI566606, T54669, AI814941, AA680075, AA852300, AA131298, AI686560, AA600068, AI380408, AI694164, AA338172, AA853557, AA304609, AA332521, R94291, AA131543, AW198197, W68749, N56676, AA377810, H58556, AA055184, W58726, AA570322, AA347235, R75738, AA419374, W51998, W52829, AI280595, AA366339, AI537499, AA347234, and AA253337.
HBJHG02	9471	919450	1 - 643	15 - 657	AA126455, and AA805265.
HBJGT03	9472	923800	1 - 497	15 - 511	AW014944, AI571386, AI494432, AW149677, and AC007682.
HBJFR45	9473	722105	1 - 519	15 - 533	AW205972, and R06326.
HBJFQ08	9474	959190	1 - 326	15 - 340	
HBJFP52	9475	728580	1 - 471	15 - 485	R33062, and R26486.
HBJFP08	9476	959868	1 - 474	15 - 488	AA463369.
HBJFK85	9477	783432	1 - 292	15 - 306	AL036438, and R43453.
HBJFI48	9478	847899	1 - 489	15 - 503	AC005180.
HBJFI30	9479	691056	1 - 440	15 - 454	H83540, H83349, T98751, and T89066.
HBJFH60	9480	740543	1 - 552	15 - 566	AI631029, N51923, H64804, AW016151, N51665, N53749, AA503053, AA917715, R81860, and N50398.
HBJFH06	9481	935587	1 - 675	15 - 689	AA189094.
HBJFD41	9482	711591	1 - 638	15 - 652	AA120846, N94144, and AA120845.
HBJFD21	9483	671205	1 - 869	15 - 883	W89209, AA236825, T90638, AA255865, AW137746, AA814395, AA814416, AA825532, T83165, and T82244.
HBJFC23	9484	423885	1 - 616	15 - 630	AW276648, R21362, H10771, AW376712, AI907952, AW407979, AW366716, H08663, and AB028960.
HBJFB10	9485	968162	1 - 421	15 - 435	AI040621, H71636, T80789, and AL035086.
HBJEY89	9486	787044	1 - 309	15 - 323	W59951.
HBJES09	9487	487020	1 - 547	15 - 561	
HBJEP70	9488	757374	1 - 476	15 - 490	R64066, and R64081.
HBJEN68	9489	752251	1 - 594	15 - 608	H48332, H53781, and H48241.
HBJEM45	9490	722107	1 - 306	15 - 320	N35747.
HBJEL04	9491	615515	1 - 480	15 - 494	H90849, H78133, and AI023482.
HBJEJ06	9492	935967	1 - 385	15 - 399	H37882.
HBJEE72	9493	766187	1 - 516	15 - 530	AI739168, AI243692, R61551, AI423731, R53934, AA426249, T06305, AI423751, AA805323, and AA736849.
HBJED51	9494	485130	1 - 485	15 - 499	
HBJED05	9495	935058	1 - 459	15 - 473	T19837, Z42292, W56491, Z43884, R10274, H61521, AA047587, AI557059, AA001460, R21700, R56331, H58106, W68068, AI879218, AI902942, AW391832, H71164, F06897, and Z28851.

HBJEC67	9496	573809	1 - 424	15 - 438		
HBJEA73	9497	573834	1 - 105	15 - 119		
HBJEA54	9498	625943	1 - 507	15 - 521		
HBJEA38	9499	577103	1 - 598	15 - 612		W85789, AA693974, AI032087, and W85723.
HBJEA37	9500	839964	1 - 96	15 - 110		
HBJEA13	9501	419107	1 - 255	15 - 269		
HBJDZ49	9502	847928	1 - 383	15 - 397		AI018729, AI017735, T94096, AA788760, AC004878, AC006014, AC005488, AC005071, AC006480, AF030453, and AC005088.
HBJDR24	9503	677407	1 - 415	15 - 429		R96956.
HBJDQ86	9504	784654	1 - 422	15 - 436		N92225.
HBJDM70	9505	757435	1 - 386	15 - 400		H02200.
HBIDL24	9506	678272	1 - 624	15 - 638		R92654, R92648, and N59587.
HBJCV85	9507	900955	1 - 807	15 - 821		D58283, D80195, D80227, D80391, D80166, D59859, D80043, D59502, D51423, D59619, D80210, D51799, D80240, D80253, D80196, D80269, D80038, D80188, D80212, D59275, D80193, D57483, D59927, D80219, D81030, D80022, D50979, D59889, D59610, D80366, D80378, D80045, D59787, C14429, D50995, D80164, D81026, D80241, D80024, T03269, C15076, C14389, C75259, C14014, C14331, D59467, D51060, AW178893, AA305409, D80134, F13647, D51250, D80268, D58253, D80949, AA305578, D80168, C14227, D51079, D81111, D51022, AW177440, AW179328, D80522, D52291, AW178775, AW378532, D59695, AW352158, AW377671, Z21582, AI910186, AW369651, AI905856, D80251, AA514188, D80248, AW178762, AA514186, D51097, AA285331, C05695, C14298, AW177501, AW177511, D80064, D80133, AW360811, C14407, AW352117, AW176467, AW378540, AW375405, AW360834, D80132, AW366296, AW360844, AW360817, AW375406, AW378534, AW179332, AW377672, AW179023, AW178905, AW179220, D80302, AI557751, AW352171, D80439, AW377676, AW178906, AW352170, AW177731, AW178907, AW179019, AW179024, D59373, D80247, D80014, AW177505, AW179020, AW360841, AW178909, AW177456, AW179329, AW178980, AW177733, AW378528, AW178908, AW178754, AW179018, AW352174, T11417, D51103, T03116, AW179004, AW179012, AW178914, AW378525, D80157, AW367967, AW177722, AW177728, T02974, D51759, AW179009, AW178774, AW178911, AW378543, AW352163, D58246, C06015, D59503, D80258, AW178983, AW352120, AW178781, T48593, D51213, AW378539, D59627, AI557774, D58101, AI535850, AA809122, AW177723, D59653, AW177508, D45260, C14975, AI525923, AW378533, AW367950, H67866, D59317, H67854, C03092, D45273, AW177497, AI535686, AW178986, N66429, AW177734, AI525917, C14973, C14344, D59474, AI525227, D51221, D59551, D60010, AA033512, AI525920, AA514184, D60214, C14957, C14046, C16955, T03048, AI525242, AI525235, AI525912, AI525925, AI535961, AW378542, AI525215, C05763, Z33452, AI525237, AI525222, D31458, AJ132110, A62300, A84916, A62298, X67155, A67220, D89785, A78862, D26022, A25909, Y17188,

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HBJCQ65	9508	876430	1 - 1780	15 - 1794	AI828112, AI762456, AI669527, AW270041, AW005454, AI742020, AI813489, AW055057, AW438593, AA702328, AI379307, AA262137, AA643040, AA694381, AA281632, AW243902, AI422791, AA493261, AW117912, AI034474, AW236597, AW440103, AI292303, AA281692, D19612, AA768827, N99706, AI081788, AI868989, AA514538, AA877024, N71978, R24110, AW449526, R17044, AW082476, AA369546, R24059, AI290151, R26499, AI383270, AA612940, AW082653, R50985, C16425, R26471, AI701667, D62032, AA262413, AA333518, AW082649, AA722211, AI539327, AA369545, AW021723, R17005, AA468881, AA522467, AI371310, N93082, and W24736.
HBJCJ82	9509	779645	1 - 467	15 - 481	
HBJCE07	9510	954090	1 - 180	15 - 194	R02678.
HBJCB83	9511	781411	1 - 617	15 - 631	T8832.
HBJBR04	9512	847952	1 - 432	15 - 446	AW206286, AW291675, AW025778, T99524, AW026757, and AC005682.
HBJAP95	9513	796659	1 - 263	15 - 277	N89814, AA209448, AW239298, AP000541, and AJ239321.
HBJAO55	9514	732436	1 - 414	15 - 428	T81741, AA778192, W85729, and AL132777.
HBJAJ49	9515	723164	1 - 427	15 - 441	N71474.
HBJAI50	9516	724619	1 - 490	15 - 504	AI089358, AA056686, AI089564, AI086521, AI669927, AI817821, AA056582, AA847148, AI827763, and AB002370.
HBJAH27	9517	682941	1 - 239	15 - 253	
HBJAE32	9518	699695	1 - 395	15 - 409	W88646, AI368895, and Z39215.
HBJAB77	9519	772422	1 - 491	15 - 505	H53026.
HBJAB49	9520	722195	1 - 874	15 - 888	AI479236, AI935423, AA255972, and AA243356.
HBJAB28	9521	847966	1 - 486	15 - 500	Z28561.
HBJAB15	9522	660552	1 - 395	15 - 409	AA429379.
HBDAB47	9523	720008	1 - 572	15 - 586	AA252703, AI760942, and AA565583.
HBDAD64	9524	864344	1 - 534	15 - 548	H04563, R80434, AA531428, Z82215, and Z95114.
HBDAD16	9525	661560	1 - 375	15 - 389	AI810593, and T89570.
HBDCCO10	9526	963157	1 - 564	15 - 578	AA701314, and AA004793.

HBCCJ05	9527	930956	1 - 568	15 - 582	H59931, H67432, Z70280, AC003100, AC006998, AC003072, AC005154, AL022154, and AC003034.
HBCCCE11	9528	965869	1 - 579	15 - 593	AI672457, AA810483, AI269914, AI949892, AI198001, W86511, AW237699, AI863804, and AI525426.
HBCCCD06	9529	938319	1 - 590	15 - 604	AI078128, AI871101, AI274339, AA035467, AA419038, AI479404, AI677732, AW190726, AI198435, AA031617, AI283200, AI983969, AA411122, AI093316, AI361637, AI769275, AI560217, AA961077, AI291805, AI291474, AA915909, AA035466, AA046943, AI857306, AA661657, AA427407, AA725194, AA423792, AW070742, AW051192, AI275083, AW293787, AW452102, AA250784, AA031475, N92812, H91759, AW149476, H91665, and AA514348.
HBCCB51	9530	975256	1 - 515	15 - 529	
HBCBR08	9531	958151	1 - 567	15 - 581	AA280776, AL137689, AF111173, and AF100172.
HBCBN51	9532	952057	1 - 995	15 - 1009	AA464030, AA434281, AA410674, D78694, AI860751, AI628190, AA568168, AI097605, AI199027, D78920, AA227411, AI200649, AI199599, AI935345, AA525327, AI475176, AI910441, AI923458, AI247190, AI687257, AI923451, AI541551, AI699991, AI653151, and AW438934.
IIBCBN06	9533	934110	1 - 525	15 - 539	H40594.
HBCBG04	9534	926761	1 - 588	15 - 602	AA677024, and AI022041.
HBCBF12	9535	969578	1 - 517	15 - 531	AI566483, AA417101, and AL021368.
HBCBE57	9536	848322	1 - 758	15 - 772	AA486018, AA005417, H56995, AL031666, and AF144233.
HBCBB22	9537	848325	1 - 895	15 - 909	AA419501, AA969163, AI157911, AA410996, AW452982, AW339854, and H14554.
HBCAW52	9538	573919	1 - 349	15 - 363	AA826669, AA287363, AI809776, AA470582, AA516190, AA505108, AA838091, AI680323, AA947361, Z97054, AL049694, AC005484, AC004253, AC005288, AC004019, AL049757, AC004584, AC006441, AC009247, AC007395, AC004216, AC004895, AL022316, U91318, U95742, AL049766, AL009181, AL023553, AC016830, AC002350, AC007216, AC000052, Z85986, AC007676, AC005562, AC016027, AC005822, AL031848, AL050318, AL031662, AC006088, AC003950, AC005086, AC004099, AB001523, AP000694, AC004841, AC010205, AC004765, AC005280, AC004813, AL109984, AC005409, AC003101, AC004678, AC004812, AP000514, AL034429, AC004874, AL031602, AC006487, AI009610, AC004596, AL136295, AC002314, AC007227, AL117694, AP001060, AC004125, AL031587, AL133246, AC005057, AF001548, AP000512, AC005004, AC005088, Z83844, AL031311, U91323, AC007686, AF001549, AL022165, AF030453, Z98941, Z84469, AC004383, AC005914, Z93016, AC005516, AL049569, AC006059, Z93017, Z83847, AC005837, AC004913, AF217403, AC005015, AC004662, AC005081, AC007193, AC008039, AC003982, AC005058, AC006130, M89651, AC008372, AF043945, AC005696, AL096701, AL024474, AC002312, AL031276, AC004531, AL009183, AL049776, AL049780, AC005821, AC003046, AF134726, AL096712, AL031985, AL049758, AL035249, AL023807, AP000501, Z93241, AL133382, AC005940, AC010077, AC008101, AL035086, AC006430, AC002425, Z86090, AC005082, AC007899, AC005049,

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HBCAT10	9539	968195	1 - 323	15 - 337	AL351598, and AL021528.
HBCAS32	9540	699489	1 - 264	15 - 278	H39875.
HBCAQ85	9541	783431	1 - 362	15 - 376	R60453, H10942, and Z42911.
HBCAQ42	9542	864356	1 - 418	15 - 432	AA594734, AA376358, N69399, AL623364, AA368329, AI733856, AI246386, AA077619, AA133013, AI246061, AA878492, AI689198, AA299422, AI268019, T53133, AI273990, AA484022, AA211918, H73550, AW161459, AA434078, W26972, AA831638, AA614647, AW161879, M78026, AI191343, AI811846, AI003797, AA814878, AA936548, AW268329, AA714524, AA804334, H67064, AW069227, F33126, AA504951, T08386, AI905588, AI491765, H24953, AI634187, AA584207, AI457313, AI280574, AA356376, AI243793, AA363027, AA344645, AW007980, AA706202, AA226357, AW378516, AA325115, AI744933, C14966, AA226356, AI049630, F32591, AA568399, AA058312, AI052776, AA809089, AI904840, AA598605, H65213, AA568400, AA568416, AW378511, AW270429, AA565319, AA425924, AI926717, AW270351, AI821420, AI697425, T47138, AA862312, AL042735, AA573693, AI805261, AI054090, AA514450, AI469392, AI368862, AA357878, AA525331, AI718462, AI568147, C15504, AI332615, AA363003, AA523695, AW068786, AA714512, H44944, AA526216, AI683116, AW243793, AL033392, AC004491, AC005231, AL022326, U62293, U63721, AC005057, AP000516, AC002375, AL031280, U02051, AC005944, AC004801, AC007666, AL031602, AL022311, AP000696, AL022324, AP000690, AC005585, AC004662, AJ251973, AL078638, AC007308, AL031595, AC002470, AC003030, AC005280, AC002492, AL049646, AC006050, Z93244, AL031665, AL020993, AL049563, AL031291, AP000501, AL109627, AC005015, AC005786, AF165926, AC006600, AF031078, AC005412, AL133243, AL031289, AC007376, AC005317, AF030876, AC004703, AC004382, AL035455, AP000689, AC005829, AL031007, X58139, AC009510, AC007686, U47924, AC006011, AC005011, AL022320, AC004973, AC004865, Z94802, AC005670, AL135959, AC007707, AC007685, AC002558, AB013139, AL031431, AB020690, AC006120, AC007358, AB000931, AC005393, AC005908, AC000025, AC004651, AC005316, AC004760, AC003071, AC005031, AL031577, AC000052, AC004817, AC005837, AL022721, AC007880, AC002115, U63834, Z82250, AF043460, AC007390, AL078602, AC007263, U78027, AC004230, M84472, AL079342, AL035682, AC005214, AL022334, AC004796, AC007444, AF051976, AC000125, U91326,



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HASCG58	9543	738423	1 - 489	15 - 503	T83649, AW450374, AL079410, T92067, AA031273, F24833, AL129738, AA031274, R10134, R24168, and AA625541.
HASAW90	9544	789112	1 - 822	15 - 836	N42137, AA416659, AL587031, R18649, AA416660, D78802, AW182288, and N33742.
HASAR74	9545	879377	1 - 1185	15 - 1199	AW302315, AA644090, AL962030, AA601356, AL040051, AL345721, AA483606, AL040054, AA568204, AA570740, AA584489, AW188742, AA581263, AA714011, AA749235, AL061313, AA687730, AA503298, AA838190, AL251576, AW021917, AA862243, AA640305, AA626040, AL499954, AA347114, AL135357, AA584482, AL207424, AL583466, AA121777, AL182731, D87008, D88268, AC007382, AL031177, AL008719, AL079304, AC005274, AC004615, Z96074, AC008082, AC005406, AL023283, U95743, AL117329, AC005071, AL035405, AC004866, AC002449, AL136297, AC004097, AC005010, AC005744, Z98304, AL049839, AC005829, AC000403, AC004672, AC005231, AL020997, AC000038, M89651, AC006454, AC005280, Z85996, AL035697, AC012627, U85195, AC006581, AE000658, AC004883, Z97054, AC006487, AL049636, AL023553, AC005184, AC004020, AL034421, AL031584, AC009516, AC010206, AL022323, U95741, AC002984, AL121694, AC007981, AP000208, AP000557, AC005013, AC002542, Z82201, AC005821, AC005899, AL117352, AL031466, AC005512, AC005261, AC004804, AP000247, Z95114, AL031767, AP000130, AC006101, AC006459, AC003071, U96629, AL049631, Z83822, AC006162, AC005786, AC004913, AP000030, AC005562, AC004706, AC005049, AC010582, AL031289, AL021397, AC006001, AC006285, AC005411, AC005778, AC005874, AF134471, AP000501, AC004814, AL080241, AC004837, AC007546, AL109628, Z84480, AC007052, AC006445, AL109798, AP000212, AP000134, Z98946.

					AC009396, AL021155, AF172277, AC004687, AC002310, AC007461, AC000378, AL079342, AC003004, AL008718, AL022316, AF217403, AL031311, AC005224, AC004222, AL031650, AP000086, AL078639, AC007664, Z69710, AP000251, AB000877, AC004975, AC007792, AL135783, AC004491, AC007406, AC005529, AC007055, AL035587, Z82203, AC002504, AC004707, AC002350, AC005940, AL050333, Z93023, AL135744, AP000516, AC007919, AC004859, U78027, AL035684, Z81364, Z84466, Z95115, Z85987, AC004128, AC006046, AC004386, AC005884, AC004775, AL035422, AC005544, AC007541, AL031733, AC005088, AL035420, Z85986, AC002091, AC009247, AC005519, AC005907, AC002558, AL139054, AC000385, AL136295, AC007488, AP000506, AC006211, AC007225, AC000025, AC005527, AL031431, AC005412, AC004797, AC005587, AC002369, AC004865, AC005683, AP000502, AL050338, AF134726, AC008132, AL136504, Z75887, AC005578, AL137191, AL030995, AF109907, AC006088, AB000882, AC002375, AL008627, AC005042, AC004659, AL021807, AF099810, AC004125, AC005377, AC007676, AF024534, AD001527, AC002119, AC004841, AC006333, AL109952, AC005921, AL035072, AC004694, AP000065, AC005015, AL050308, Z98200, AC006530, AC004156, AC002486, AC004453, AL078581, AC011311, AC005919, AC002416, AC004598, AC006241, and AF001549.
HASAC10	9546	968746	1 - 470	15 - 484	AI863136, N71484, AA318470, AA972121, AW129333, and AC007677.

**TABLE 4**

Code	Description	Tissue	Organ	Cell Line	Disease	Vector
AR022	a_Heart	a_Heart				
AR023	a_Liver	a_Liver				
AR024	a_mammary gland	a_mammary gland				
AR025	a_Prostate	a_Prostate				
AR026	a_small intestine	a_small intestine				
AR027	a_Stomach	a_Stomach				
AR028	Blood B cells	Blood B cells				
AR029	Blood B cells activated	Blood B cells activated				
AR030	Blood B cells resting	Blood B cells resting				
AR031	Blood T cells activated	Blood T cells activated				
AR032	Blood T cells resting	Blood T cells resting				
AR033	brain	brain				
AR034	breast	breast				
AR035	breast cancer	breast cancer				
AR036	Cell Line CAOV3	Cell Line CAOV3				
AR037	cell line PA-1	cell line PA-1				
AR038	cell line transformed	cell line transformed				
AR039	colon	colon				
AR040	colon (9808co65R)	colon (9808co65R)				
AR041	colon (9809co15)	colon (9809co15)				
AR042	colon cancer	colon cancer				
AR043	colon cancer (9808co64R)	colon cancer (9808co64R)				
AR044	colon cancer 9809co14	colon cancer 9809co14				
AR045	corn clone 5	corn clone 5				
AR046	corn clone 6	corn clone 6				
AR047	corn clone2	corn clone2				
AR048	corn clone3	corn clone3				
AR049	Corn Clone4	Corn Clone4				
AR050	Donor II B Cells 24hrs	Donor II B Cells 24hrs				
AR051	Donor II B Cells 72hrs	Donor II B Cells 72hrs				
AR052	Donor II B-Cells 24 hrs.	Donor II B-Cells 24 hrs.				
AR053	Donor II B-Cells 72hrs	Donor II B-Cells 72hrs				
AR054	Donor II Resting B Cells	Donor II Resting B Cells				
AR055	Heart	Heart				
AR056	Human Lung (clontech)	Human Lung (clontech)				
AR057	Human Mammary (clontech)	Human Mammary (clontech)				
AR058	Human Thymus (clontech)	Human Thymus (clontech)				
AR059	Jurkat (unstimulated)	Jurkat (unstimulated)				
AR060	Kidney	Kidney				
AR061	Liver	Liver				
AR062	Liver (Clontech)	Liver (Clontech)				
AR063	Lymphocytes chronic lymphocytic leukaemia	Lymphocytes chronic lymphocytic leukaemia				

AR064	Lymphocytes diffuse large B cell lymphoma	Lymphocytes diffuse large B cell lymphoma				
AR065	Lymphocytes follicular lymphoma	Lymphocytes follicular lymphoma				
AR066	normal breast	normal breast				
AR067	Normal Ovarian (4004901)	Normal Ovarian (4004901)				
AR068	Normal Ovary 9508G045	Normal Ovary 9508G045				
AR069	Normal Ovary 9701G208	Normal Ovary 9701G208				
AR070	Normal Ovary 9806G005	Normal Ovary 9806G005				
AR071	Ovarian Cancer	Ovarian Cancer				
AR072	Ovarian Cancer (9702G001)	Ovarian Cancer (9702G001)				
AR073	Ovarian Cancer (9707G029)	Ovarian Cancer (9707G029)				
AR074	Ovarian Cancer (9804G011)	Ovarian Cancer (9804G011)				
AR075	Ovarian Cancer (9806G019)	Ovarian Cancer (9806G019)				
AR076	Ovarian Cancer (9807G017)	Ovarian Cancer (9807G017)				
AR077	Ovarian Cancer (9809G001)	Ovarian Cancer (9809G001)				
AR078	ovarian cancer 15799	ovarian cancer 15799				
AR079	Ovarian Cancer 17717AID	Ovarian Cancer 17717AID				
AR080	Ovarian Cancer 4004664B1	Ovarian Cancer 4004664B1				
AR081	Ovarian Cancer 4005315A1	Ovarian Cancer 4005315A1				
AR082	ovarian cancer 94127303	ovarian cancer 94127303				
AR083	Ovarian Cancer 96069304	Ovarian Cancer 96069304				
AR084	Ovarian Cancer 9707G029	Ovarian Cancer 9707G029				
AR085	Ovarian Cancer 9807G045	Ovarian Cancer 9807G045				
AR086	ovarian cancer 9809G001	ovarian cancer 9809G001				
AR087	Ovarian Cancer 9905C032RC	Ovarian Cancer 9905C032RC				
AR088	Ovarian cancer 9907 C00 3rd	Ovarian cancer 9907 C00 3rd				
AR089	Prostate	Prostate				
AR090	Prostate (clonotech)	Prostate (clonotech)				
AR091	prostate cancer	prostate cancer				
AR092	prostate cancer #15176	prostate cancer #15176				
AR093	prostate cancer #15509	prostate cancer #15509				
AR094	prostate cancer #15673	prostate cancer #15673				
AR095	Small Intestine (Clontech)	Small Intestine (Clontech)				
AR096	Spleen	Spleen				
AR097	Thymus T cells activated	Thymus T cells				

		activated				
AR098	Thymus T cells resting	Thymus T cells resting				
AR099	Tonsil	Tonsil				
AR100	Tonsil germinal center centroblast	Tonsil germinal center centroblast				
AR101	Tonsil germinal center B cell	Tonsil germinal center B cell				
AR102	Tonsil lymph node	Tonsil lymph node				
AR103	Tonsil memory B cell	Tonsil memory B cell				
AR104	Whole Brain	Whole Brain				
AR105	Xenograft ES-2	Xenograft ES-2				
AR106	Xenograft SW626	Xenograft SW626				
H0004	Human Adult Spleen	Human Adult Spleen	Spleen			Uni-ZAP XR
H0013	Human 8 Week Whole Embryo	Human 8 Week Old Embryo	Embryo			Uni-ZAP XR
H0022	Jurkat Cells	Jurkat T-Cell Line				Lambda ZAP II
H0025	Human Adult Lymph Node	Human Adult Lymph Node	Lymph Node			Lambda ZAP II
H0031	Human Placenta	Human Placenta	Placenta			Uni-ZAP XR
H0050	Human Fetal Heart	Human Fetal Heart	Heart			Uni-ZAP XR
H0057	Human Fetal Spleen					Uni-ZAP XR
H0058	Human Thymus Tumor	Human Thymus Tumor	Thymus		disease	Lambda ZAP II
H0059	Human Uterine Cancer	Human Uterine Cancer	Uterus		disease	Lambda ZAP II
H0060	Human Macrophage	Human Macrophage	Blood	Cell Line		pBluescript
H0061	Human Macrophage	Human Macrophage	Blood	Cell Line		pBluescript
H0062	Human Thymus	Human Thymus	Thymus			Uni-ZAP XR
H0063	Human Thymus	Human Thymus	Thymus			Uni-ZAP XR
H0069	Human Activated T-Cells	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0073	Human Leiomyeloid Carcinoma	Human Leiomyeloid Carcinoma	Muscle		disease	Uni-ZAP XR
H0074	Human Platelets	Human Platelets	Blood	Cell Line		Uni-ZAP XR
H0075	Human Activated T-Cells (II)	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0083	HUMAN JURKAT MEMBRANE BOUND POLYSOMES	Jurkat Cells				Uni-ZAP XR
H0087	Human Thymus	Human Thymus				pBluescript
H0090	Human T-Cell Lymphoma	T-Cell Lymphoma	T-Cell		disease	Uni-ZAP XR
H0108	Human Adult Lymph Node, subtracted	Human Adult Lymph Node	Lymph Node			Uni-ZAP XR
H0109	Human Macrophage, subtracted	Macrophage	Blood	Cell Line		pBluescript
H0116	Human Thymus Tumor, subtracted	Human Thymus Tumor	Thymus			pBluescript
H0128	Jurkat cells, thiouridine activated	Jurkat Cells				Uni-ZAP XR
H0129	Jurkat cells, thiouridine activated, fract II	Jurkat Cells				Uni-ZAP XR

H0134	Raji Cells, cyclohexamide treated	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0139	Activated T-Cells, 4 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0140	Activated T-Cells, 8 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0141	Activated T-Cells, 12 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0158	Activated T-Cells, 4 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0159	Activated T-Cells, 8 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0160	Activated T-Cells, 12 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0161	Activated T-Cells, 24 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0167	Activated T-Cells, 24 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0179	Human Neutrophil	Human Neutrophil	Blood	Cell Line		Uni-ZAP XR
H0185	Activated T-Cell labeled with 4-thioluri	T-Cells	Blood	Cell Line		Lambda ZAP II
H0186	Activated T-Cell	T-Cells	Blood	Cell Line		Lambda ZAP II
H0187	Resting T-Cell	T-Cells	Blood	Cell Line		Lambda ZAP II
H0189	Human Resting Macrophage	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0191	Human Activated Macrophage (LPS), thiour	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0202	Jurkat Cells, cyclohexamide treated, subtraction	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0203	Jurkat Cells, cyclohexamide treated, dif	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0218	Activated T-Cells, 0hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0219	Activated T-Cells, 0hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0220	Activated T-Cells, 4 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0221	Activated T-Cells, 4 hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0222	Activated T-Cells, 8 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0223	Activated T-Cells, 8 hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0224	Activated T-Cells, 12 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0225	Activated T-Cells, 12hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0250	Human Activated Monocytes	Human Monocytes				Uni-ZAP XR
H0253	Human adult testis, large inserts	Human Adult Testis	Testis			Uni-ZAP XR
H0254	Breast Lymph node cDNA library	Breast Lymph Node	Lymph Node			Uni-ZAP XR
H0255	breast lymph node CDNA	Breast Lymph Node	Lymph Node			Lambda

	library					ZAP II
H0261	H. cerebellum, Enzyme subtracted	Human Cerebellum	Brain			Uni-ZAP XR
H0264	human tonsils	Human Tonsil	Tonsil			Uni-ZAP XR
H0265	Activated T-Cell (12hs)/Thiouridine labelled Eco	T-Cells	Blood	Cell Line		Uni-ZAP XR
H0271	Human Neutrophil, Activated	Human Neutrophil - Activated	Blood	Cell Line		Uni-ZAP XR
H0272	HUMAN TONSILS, FRACTION 2	Human Tonsil	Tonsil			Uni-ZAP XR
H0274	Human Adult Spleen, fraction II	Human Adult Spleen	Spleen			Uni-ZAP XR
H0300	CD34 positive cells (Cord Blood)	CD34 Positive Cells	Cord Blood			ZAP Express
H0305	CD34 positive cells (Cord Blood)	CD34 Positive Cells	Cord Blood			ZAP Express
H0306	CD34 depleted Buffy Coat (Cord Blood)	CD34 Depleted Buffy Coat (Cord Blood)	Cord Blood			ZAP Express
H0318	HUMAN B CELL LYMPHOMA	Human B Cell Lymphoma	Lymph Node		disease	Uni-ZAP XR
H0341	Bone Marrow Cell Line (RS4;11)	Bone Marrow Cell Line RS4;11	Bone Marrow	Cell Line		Uni-ZAP XR
H0354	Human Leukocytes	Human Leukocytes	Blood	Cell Line		pCMVSPORT 1
H0369	H. Atrophic Endometrium	Atrophic Endometrium and myometrium				Uni-ZAP XR
H0370	H. Lymph node breast Cancer	Lymph node with Met. Breast Cancer			disease	Uni-ZAP XR
H0376	Human Spleen	Human Adult Spleen	Spleen			pCMVSPORT 1
H0393	Fetal Liver, subtraction II	Human Fetal Liver	Liver			pBluescript
H0402	CD34 depleted Buffy Coat (Cord Blood), re-excision	CD34 Depleted Buffy Coat (Cord Blood)	Cord Blood			ZAP Express
H0416	Human Neutrophils, Activated, re-excision	Human Neutrophil - Activated	Blood	Cell Line		pBluescript
H0421	Human Bone Marrow, re-excision	Bone Marrow				pBluescript
H0422	T-Cell PHA 16 hrs	T-Cells	Blood	Cell Line		pSPORT1
H0423	T-Cell PHA 24 hrs	T-Cells	Blood	Cell Line		pSPORT1
H0436	Resting T-Cell Library, II	T-Cells	Blood	Cell Line		pSPORT1
H0439	Human Eosinophils	Eosinophils				pBluescript
H0444	Spleen metastatic melanoma	Spleen, Metastatic malignant melanoma	Spleen		disease	pSPORT1
H0445	Spleen, Chronic lymphocytic leukemia	Human Spleen, CLL	Spleen		disease	pSPORT1
H0457	Human Eosinophils	Human Eosinophils				pSPORT1
H0477	Human Tonsil, Lib 3	Human Tonsil	Tonsil			pSPORT1
H0478	Salivary Gland, Lib 2	Human Salivary Gland	Salivary gland			pSPORT1
H0485	Hodgkin's Lymphoma I	Hodgkin's Lymphoma I			disease	pCMVSPORT 2.0
H0486	Hodgkin's Lymphoma II	Hodgkin's Lymphoma II			disease	pCMVSPORT 2.0
H0487	Human Tonsils, lib 1	Human Tonsils				pCMVSPORT 2.0
H0488	Human Tonsils, Lib 2	Human Tonsils				pCMVSPORT

						2.0
H0494	Keratinocyte	Keratinocyte				pCMV Sport 2.0
H0506	Ulcerative Colitis	Colon	Colon			pSport1
H0510	Human Liver, normal	Human Liver, normal, Patient # 8	Liver			pCMV Sport 3.0
H0518	pBMC stimulated w/ poly I/C	pBMC stimulated with poly I/C				pCMV Sport 3.0
H0521	Primary Dendritic Cells, lib 1	Primary Dendritic cells				pCMV Sport 3.0
H0522	Primary Dendritic cells, frac 2	Primary Dendritic cells				pCMV Sport 3.0
H0524	Primary Dendritic Cells, CapFinder, frac 2	Primary Dendritic cells				pSport1
H0529	Myeloid Progenitor Cell Line	TF-1 Cell Line; Myeloid progenitor cell line				pCMV Sport 3.0
H0537	H. Primary Dendritic Cells, lib 3	Primary Dendritic cells				pCMV Sport 2.0
H0542	T Cell helper I	Helper T cell				pCMV Sport 3.0
H0543	T cell helper II	Helper T cell				pCMV Sport 3.0
H0545	Human endometrial stromal cells-treated with progesterone	Human endometrial stromal cells-treated with proge				pCMV Sport 3.0
H0551	Human Thymus Stromal Cells	Human Thymus Stromal Cells				pCMV Sport 3.0
H0552	Signal trap, Femur Bone Marrow, pooled	Femur Bone marrow, pooled from 8 male/female				Other
H0556	Activated T- cell(12h)/Thiouridine-re- excision	T-Cells	Blood	Cell Line		Uni-ZAP XR
H0560	KMH2	KMH2				pCMV Sport 3.0
H0575	Human Adult Pulmonary; re-excision	Human Adult Pulmonary	Lung			Uni-ZAP XR
H0576	Resting T-Cell; re- excision	T-Cells	Blood	Cell Line		Lambda ZAP II
H0578	Human Fetal Thymus	Fetal Thymus	Thymus			pSport1
H0580	Dendritic cells, pooled	Pooled dendritic cells				pCMV Sport 3.0
H0581	Human Bone Marrow, treated	Human Bone Marrow	Bone Marrow			pCMV Sport 3.0
H0583	B Cell lymphoma	B Cell Lymphoma	B Cell		disease	pCMV Sport 3.0
H0584	Activated T-cells, 24 hrs, re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0585	Activated T-Cells, 12 hrs, re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0589	CD34 positive cells (cord blood), re-ex	CD34 Positive Cells	Cord Blood			ZAP Express
H0591	Human T-cell lymphoma; re-excision	T-Cell Lymphoma	T-Cell		disease	Uni-ZAP XR
H0606	Human Primary Breast Cancer; re-excision	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0607	H. Leukocytes, normalized cot 50A3	H. Leukocytes				pCMV Sport 1
H0608	H. Leukocytes, control	H. Leukocytes				pCMV Sport 1
H0609	H. Leukocytes,	H. Leukocytes				pCMV Sport



	normalized cot > 500A					1
H0610	H. Leukocytes, normalized cot 5A	H. Leukocytes				pCMVSPORT 1
H0611	H. Leukocytes, normalized cot 500 B	H. Leukocytes				pCMVSPORT 1
H0612	H. Leukocytes, normalized cot 50 B	H. Leukocytes				pCMVSPORT 1
H0614	H. Leukocytes, normalized cot 500 A	H. Leukocytes				pCMVSPORT 1
H0625	Ku 812F Basophils Line	Ku 812F Basophils				pSPORT 1
H0635	Human Activated T-Cells, re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0637	Dendritic Cells From CD34 Cells	Dendritic cells from CD34 cells				pSPORT 1
H0638	CD40 activated monocyte dendritic cells	CD40 activated monocyte dendritic cells				pSPORT 1
H0641	LPS activated derived dendritic cells	LPS activated monocyte derived dendritic cells				pSPORT 1
H0650	B-Cells	B-Cells				pCMVSPORT 3.0
H0653	Stromal Cells	Stromal Cells				pSPORT 1
H0656	B-cells (unstimulated)	B-cells (unstimulated)				pSPORT 1
H0657	B-cells (stimulated)	B-cells (stimulated)				pSPORT 1
H0659	Ovary, Cancer (15395A1F): Grade II Papillary Carcinoma	Grade II Papillary Carcinoma, Ovary	Ovary		disease	pSPORT 1
H0660	Ovary, Cancer: (15799A1F) Poorly differentiated carcinoma	Poorly differentiated carcinoma, ovary			disease	pSPORT 1
H0673	Human Prostate Cancer, Stage B2; re-excision	Human Prostate Cancer, stage B2	Prostate			Uni-ZAP XR
H0677	TNFR degenerate oligo	B-Cells				PCR II
H0679	screened clones from Tonsil library	Human Tonsils				Other
S0002	Monocyte activated	Monocyte-activated	blood	Cell Line		Uni-ZAP XR
S0026	Stromal cell TF274	stromal cell	Bone marrow	Cell Line		Uni-ZAP XR
S0027	Smooth muscle, serum treated	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0031	Spinal cord	Spinal cord	spinal cord			Uni-ZAP XR
S0052	neutrophils control	human neutrophils	blood	Cell Line		Uni-ZAP XR
S0053	Neutrophils IL-1 and LPS induced	human neutrophil induced	blood	Cell Line		Uni-ZAP XR
S0114	Anergic T-cell	Anergic T-cell		Cell Line		Uni-ZAP XR
S0116	Bone marrow	Bone marrow	Bone marrow			Uni-ZAP XR
S0134	Apoptotic T-cell	apoptotic cells		Cell Line		Uni-ZAP XR
S0140	eosinophil-IL5 induced	eosinophil	lung	Cell Line		Uni-ZAP XR
S0142	Macrophage-oxLDL	macrophage-oxidized LDL treated	blood	Cell Line		Uni-ZAP XR
S0144	Macrophage (GM-CSF treated)	Macrophage (GM-CSF treated)				Uni-ZAP XR

S0180	Bone Marrow Stroma, TNF&LPS ind	Bone Marrow Stroma, TNF & LPS induced			disease	Uni-ZAP XR
S0182	Human B Cell 8866	Human B- Cell 8866				Uni-ZAP XR
S0196	Synovial IL-1/TNF stimulated	Synovial Fibroblasts				pSport1
S0212	Bone Marrow Stromal Cell, untreated	Bone Marrow Stromal Cell, untreated				pSport1
S0216	Neutrophils IL-1 and LPS induced	human neutrophil induced	blood	Cell Line		Uni-ZAP XR
S0218	Apoptotic T-cell, re-excision	apoptotic cells		Cell Line		Uni-ZAP XR
S0222	H. Frontal cortex, epileptic; re-excision	H. Brain, Frontal Cortex, Epileptic	Brain		disease	Uni-ZAP XR
S0278	H Macrophage (GM-CSF treated), re-excision	Macrophage (GM-CSF treated)				Uni-ZAP XR
S0282	Brain Frontal Cortex, re-excision	Brain frontal cortex	Brain			Lambda ZAP II
S0292	Osteoarthritis (OA-4)	Human Osteoarthritic Cartilage	Bone		disease	pSport1
S0298	Bone marrow stroma, treated	Bone marrow stroma, treated SB	Bone marrow			pSport1
S0308	Spleen/normal	Spleen normal				pSport1
S0314	Human osteoarthritis; fraction I	Human osteoarthritic cartilage			disease	pSport1
S0344	Macrophage-oxLDL; re-excision	macrophage-oxidized LDL treated	blood	Cell Line		Uni-ZAP XR
S0358	Colon Normal III	Colon Normal	Colon			pSport1
S0418	CHME Cell Line; treated 5 hrs	CHME Cell Line; treated				pCMV Sport 3.0
S0426	Monocyte activated; re-excision	Monocyte-activated	blood	Cell Line		Uni-ZAP XR
S0428	Neutrophils control; re-excision	human neutrophils	blood	Cell Line		Uni-ZAP XR
S0442	Colon Normal	Colon Normal				pSport1
S0452	Thymus	Thymus				pSport1
S0474	Human blood platelets	Platelets	Blood platelets			Other
S3016	Basophil	Basophil				Uni-ZAP XR
S3018	TH1 cells	TH1 cells				Uni-ZAP XR
S3020	TH2 cells	TH2 cells				Uni-ZAP XR
S6028	Human Manic Depression Tissue	Human Manic depression tissue	Brain		disease	Uni-ZAP XR
T0002	Activated T-cells	Activated T-Cell, PBL fraction	Blood	Cell Line		pBluescript SK-
T0041	Jurkat T-cell G1 phase	Jurkat T-cell				pBluescript SK-
T0042	Jurkat T-Cell, S phase	Jurkat T-Cell Line				pBluescript SK-
T0071	Human Bone Marrow	Human Bone Marrow				pBluescript SK-
L0002	Atrium cDNA library Human heart					

L0004	ClonTech HL 1065a					
L0005	Clontech human aorta polyA+ mRNA (#6572)					
L0017	Human (J. Swensen)					
L0020	Human activated dendritic cell mRNA					
L0021	Human adult (K.Okubo)					
L0036	Human chromosome 21q22 mRNA					
L0040	Human colon mucosa					
L0041	Human epidermal keratinocyte					
L0051	Human mRNA (Tripodis and Ragoussis)					
L0055	Human promyelocyte					
L0060	Human thymus NSTH II					
L0065	Liver HepG2 cell line.					
L0070	Selected chromosome 21 cDNA library					
L0109	Human brain cDNA	brain				
L0142	Human placenta cDNA (TFujiwara)	placenta				
L0143	Human placenta polyA+ (TFujiwara)	placenta				
L0157	Human fetal brain (TFujiwara)		brain			
L0163	Human heart cDNA (YNakamura)		heart			
L0171	Human lung adenocarcinoma A549	lung adenocarcinoma		A549		
L0177	Human newborn melanocytes (T.Vogt)			Clonetics Corp. (San Diego, CA) strain #68 and 2486		
L0239	Homo sapiens brain fetus	brain				
L0307	Human C3-A11N			C3-A11N; clonally related variant of OCI LY8-C3P		
L0309	Human E8CASS	breast adenocarcinoma		E8CASS; variant of MCF7		
L0352	Normalized infant brain, Bento Soares					BA, M13-derived
L0361	Stratagene ovary (#937217)		ovary			Bluescript SK
L0362	Stratagene ovarian cancer (#937219)					Bluescript SK-
L0363	NCI_CGAP_GC2	germ cell tumor				Bluescript SK-
L0365	NCI_CGAP_Phe1	pheochromocytoma				Bluescript SK-
L0366	Stratagene schizo brain S11	schizophrenic brain S-11 frontal lobe				Bluescript SK-
L0367	NCI_CGAP_Sch1	Schwannoma tumor				Bluescript SK-

L0368	NCI_CGAP_SS1	synovial sarcoma				Bluescript SK-
L0369	NCI_CGAP_AA1	adrenal adenoma	adrenal gland			Bluescript SK-
L0370	Johnston frontal cortex	pooled frontal lobe	brain			Bluescript SK-
L0375	NCI_CGAP_Kid6	kidney tumor	kidney			Bluescript SK-
L0376	NCI_CGAP_Lar1	larynx	larynx			Bluescript SK-
L0377	NCI_CGAP_HN2	squamous cell carcinoma from vocal cord	larynx			Bluescript SK-
L0378	NCI_CGAP_Lu1	lung tumor	lung			Bluescript SK-
L0381	NCI_CGAP_HN4	squamous cell carcinoma	pharynx			Bluescript SK-
L0383	NCI_CGAP_Pr24	invasive tumor (cell line)	prostate			Bluescript SK-
L0384	NCI_CGAP_Pr23	prostate tumor	prostate			Bluescript SK-
L0385	NCI_CGAP_Gas1	gastric tumor	stomach			Bluescript SK-
L0386	NCI_CGAP_HN3	squamous cell carcinoma from base of tongue	tongue			Bluescript SK-
L0387	NCI_CGAP_GCB0	germinal center B-cells	tonsil			Bluescript SK-
L0389	NCI_CGAP_HN5	normal gingiva (cell line from primary keratinocyt				Bluescript SK-
L0394	H, Human adult Brain Cortex tissue					gt11
L0415	b4HB3MA Cot8-HAP-Ft					Lafmid BA
L0435	Infant brain, LLNL array of Dr. M. Soares 1NIB					lafmid BA
L0438	normalized infant brain cDNA	total brain	brain			lafmid BA
L0439	Soares infant brain 1NIB		whole brain			Lafmid BA
L0451	N3HFLSK20					Lafmid K
L0452	Chromosome 21, K. Gardiner					Lambda
L0455	Human retina cDNA randomly primed sublibrary	retina	eye			lambda gt10
L0456	Human retina cDNA Tsp509I-cleaved sublibrary	retina	eye			lambda gt10
L0457	multi-tissue normalized short-fragment	multi-tissue	pooled			lambda gt10
L0459	Adult heart, Clontech					Lambda gt11
L0462	WATM1					lambda gt11
L0465	TEST1, Human adult Testis tissue					lambda nm1149
L0468	HE6W					lambda zap
L0471	Human fetal heart, Lambda ZAP Express					Lambda ZAP Express
L0475	KG1-a Lambda Zap Express cDNA library			KG1-a		Lambda Zap Express (Stratagene)
L0476	Fetal brain, Stratagene					Lambda ZAP II

L0480	Stratagene cat#937212 (1992)					Lambda ZAP, pBluescript SK(-)
L0481	CD34+DIRECTIONAL					Lambda ZAPII
L0483	Human pancreatic islet					Lambda ZAPII
L0485	STRATAGENE Human skeletal muscle cDNA library, cat. #936215.	skeletal muscle	leg muscle			Lambda ZAPII
L0492	Human Genomic					pAMP
L0493	NCI_CGAP_Ov26	papillary serous carcinoma	ovary			pAMP1
L0498	NCI_CGAP_HSC3	CD34+, T negative, patient with chronic myelogenous	bone marrow			pAMP1
L0506	NCI_CGAP_Br16	lobular carcinoma in situ	breast			pAMP1
L0508	NCI_CGAP_Lu25	bronchioalveolar carcinoma	lung			pAMP1
L0509	NCI_CGAP_Lu26	invasive adenocarcinoma	lung			pAMP1
L0512	NCI_CGAP_Ov36	borderline ovarian carcinoma	ovary			pAMP1
L0513	NCI_CGAP_Ov37	early stage papillary serous carcinoma	ovary			pAMP1
L0515	NCI_CGAP_Ov32	papillary serous carcinoma	ovary			pAMP1
L0517	NCI_CGAP_Pr1					pAMP10
L0518	NCI_CGAP_Pr2					pAMP10
L0519	NCI_CGAP_Pr3					pAMP10
L0520	NCI_CGAP_Alv1	alveolar rhabdomyosarcoma				pAMP10
L0521	NCI_CGAP_Ew1	Ewing's sarcoma				pAMP10
L0523	NCI_CGAP_Lip2	liposarcoma				pAMP10
L0526	NCI_CGAP_Pr12	metastatic prostate bone lesion				pAMP10
L0527	NCI_CGAP_Ov2	ovary				pAMP10
L0528	NCI_CGAP_Pr5	prostate				pAMP10
L0529	NCI_CGAP_Pr6	prostate				pAMP10
L0530	NCI_CGAP_Pr8	prostate				pAMP10
L0532	NCI_CGAP_Thy1	thyroid				pAMP10
L0534	Chromosome 7 Fetal Brain cDNA Library	brain	brain			pAMP10
L0535	NCI_CGAP_Br5	infiltrating ductal carcinoma	breast			pAMP10
L0539	Chromosome 7 Placental cDNA Library		placenta			pAMP10
L0541	NCI_CGAP_Pr7	low-grade prostatic neoplasia	prostate			pAMP10
L0542	NCI_CGAP_Pr11	normal prostatic epithelial cells	prostate			pAMP10
L0543	NCI_CGAP_Pr9	normal prostatic epithelial cells	prostate			pAMP10
L0545	NCI_CGAP_Pr4.1	prostatic intraepithelial neoplasia - high grade	prostate			pAMP10
L0546	NCI_CGAP_Pr18	stroma	prostate			pAMP10
L0547	NCI_CGAP_Pr16	tumor	prostate			pAMP10
L0551	NCI_CGAP_HN7	normal squamous				pAMP10

		epithelium, floor of mouth				
L0556	NCI_CGAP_Lu34.1	large cell carcinoma	lung			pAMP10
L0562	Chromosome 7 HeLa cDNA Library			HeLa cell line; ATCC		pAMP10
L0565	Normal Human Trabecular Bone Cells	Bone	Hip			pBluescript
L0581	Stratagene liver (#937224)		liver			pBluescript SK
L0586	HTCDL1					pBluescript SK(-)
L0588	Stratagene endothelial cell 937223					pBluescript SK-
L0589	Stratagene fetal retina 937202					pBluescript SK-
L0590	Stratagene fibroblast (#937212)					pBluescript SK-
L0591	Stratagene HeLa cell s3 937216					pBluescript SK-
L0592	Stratagene hNT neuron (#937233)					pBluescript SK-
L0593	Stratagene neuroepithelium (#937231)					pBluescript SK-
L0594	Stratagene neuroepithelium NT2RAM1 937234					pBluescript SK-
L0595	Stratagene NT2 neuronal precursor 937230	neuroepithelial cells	brain			pBluescript SK-
L0596	Stratagene colon (#937204)		colon			pBluescript SK-
L0597	Stratagene corneal stroma (#937222)		cornea			pBluescript SK-
L0598	Morton Fetal Cochlea	cochlea	ear			pBluescript SK-
L0599	Stratagene lung (#937210)		lung			pBluescript SK-
L0600	Weizmann Olfactory Epithelium	olfactory epithelium	nose			pBluescript SK-
L0601	Stratagene pancreas (#937208)		pancreas			pBluescript SK-
L0602	Pancreatic Islet	pancreatic islet	pancreas			pBluescript SK-
L0603	Stratagene placenta (#937225)		placenta			pBluescript SK-
L0604	Stratagene muscle 937209	muscle	skeletal muscle			pBluescript SK-
L0605	Stratagene fetal spleen (#937205)	fetal spleen	spleen			pBluescript SK-
L0606	NCI_CGAP_Lym5	follicular lymphoma	lymph node			pBluescript SK-
L0607	NCI_CGAP_Lym6	mantle cell lymphoma	lymph node			pBluescript SK-
L0608	Stratagene lung carcinoma 937218	lung carcinoma	lung	NCI-H69		pBluescript SK-
L0612	Schiller oligodendroglioma	oligodendroglioma	brain			pBluescript SK- (Stratagene)
L0617	Chromosome 22 exon					pBluescriptII KS+
L0619	Chromosome 9 exon II					pBluescriptII

						KS+
L0622	HM1					pcDNAII (Invitrogen)
L0623	HM3	pectoral muscle (after mastectomy)				pcDNAII (Invitrogen)
L0626	NCI_CGAP_GC1	bulk germ cell seminoma				pCMV- SPORT2
L0629	NCI_CGAP_Mel3	metastatic melanoma to bowel	bowel (skin primary)			pCMV- SPORT4
L0631	NCI_CGAP_Br7		breast			pCMV- SPORT4
L0633	NCI_CGAP_Lu6	small cell carcinoma	lung			pCMV- SPORT4
L0634	NCI_CGAP_Ov8	serous adenocarcinoma	ovary			pCMV- SPORT4
L0635	NCI_CGAP_PNS1	dorsal root ganglion	peripheral nervous system			pCMV- SPORT4
L0637	NCI_CGAP_Brn53	three pooled meningiomas	brain			pCMV- SPORT6
L0638	NCI_CGAP_Brn35	tumor, 5 pooled (see description)	brain			pCMV- SPORT6
L0639	NCI_CGAP_Brn52	tumor, 5 pooled (see description)	brain			pCMV- SPORT6
L0640	NCI_CGAP_Br18	four pooled high- grade tumors, including two prima	breast			pCMV- SPORT6
L0641	NCI_CGAP_Co17	juvenile granulosa tumor	colon			pCMV- SPORT6
L0643	NCI_CGAP_Co19	moderately differentiated adenocarcinoma	colon			pCMV- SPORT6
L0644	NCI_CGAP_Co20	moderately differentiated adenocarcinoma	colon			pCMV- SPORT6
L0645	NCI_CGAP_Co21	moderately differentiated adenocarcinoma	colon			pCMV- SPORT6
L0646	NCI_CGAP_Co14	moderately- differentiated adenocarcinoma	colon			pCMV- SPORT6
L0647	NCI_CGAP_Sar4	five pooled sarcomas, including myxoid liposarcoma	connective tissue			pCMV- SPORT6
L0648	NCI_CGAP_Eso2	squamous cell carcinoma	esophagus			pCMV- SPORT6
L0649	NCI_CGAP_GU1	2 pooled high-grade transitional cell tumors	genitourinary tract			pCMV- SPORT6
L0651	NCI_CGAP_Kid8	renal cell tumor	kidney			pCMV- SPORT6
L0652	NCI_CGAP_Lu27	four pooled poorly- differentiated adenocarcinomas	lung			pCMV- SPORT6
L0653	NCI_CGAP_Lu28	two pooled squamous cell carcinomas	lung			pCMV- SPORT6
L0654	NCI_CGAP_Lu31		lung, cell line			pCMV- SPORT6
L0655	NCI_CGAP_Lym12	lymphoma, follicular mixed small and large cell	lymph node			pCMV- SPORT6
L0656	NCI_CGAP_Ov38	normal epithelium	ovary			pCMV-

						SPORT6
L0657	NCI_CGAP_Ov23	tumor, 5 pooled (see description)	ovary			pCMV-SPORT6
L0658	NCI_CGAP_Ov35	tumor, 5 pooled (see description)	ovary			pCMV-SPORT6
L0659	NCI_CGAP_Pan1	adenocarcinoma	pancreas			pCMV-SPORT6
L0661	NCI_CGAP_Mel15	malignant melanoma, metastatic to lymph node	skin			pCMV-SPORT6
L0662	NCI_CGAP_Gas4	poorly differentiated adenocarcinoma with signet r	stomach			pCMV-SPORT6
L0663	NCI_CGAP_Ut2	moderately-differentiated endometrial adenocarcino	uterus			pCMV-SPORT6
L0664	NCI_CGAP_Ut3	poorly-differentiated endometrial adenocarcinoma,	uterus			pCMV-SPORT6
L0665	NCI_CGAP_Ut4	serous papillary carcinoma, high grade, 2 pooled t	uterus			pCMV-SPORT6
L0666	NCI_CGAP_Ut1	well-differentiated endometrial adenocarcinoma, 7	uterus			pCMV-SPORT6
L0667	NCI_CGAP_CML1	myeloid cells, 18 pooled CML cases, BCR/ABL rearra	whole blood			pCMV-SPORT6
L0682	Stanley Frontal NB pool 2	frontal lobe (see description)	brain			pCR2.1-TOPO (Invitrogen)
L0686	Stanley Frontal SN pool 2	frontal lobe (see description) ,	brain			pCR2.1-TOPO (Invitrogen)
L0697	Testis 1					PGEM 5zf(+)
L0700	Outward Alu-primed hncDNA library					pGEM-3Z
L0717	Gessler Wilms tumor					pSPORT1
L0720	PN001-Normal Human Prostate		prostate			pSport1
L0731	Soares_pregnant_uterus_NbHPU		uterus			pT7T3-Pac
L0738	Human colorectal cancer					pT7T3D
L0740	Soares melanocyte 2NbHM	melanocyte				pT7T3D (Pharmacia) with a modified polylinker
L0741	Soares adult brain N2b4HB55Y		brain			pT7T3D (Pharmacia) with a modified polylinker
L0742	Soares adult brain N2b5HB55Y		brain			pT7T3D (Pharmacia) with a modified polylinker
L0743	Soares breast 2NbHBst		breast			pT7T3D (Pharmacia)



						with a modified polylinker
L0744	Soares breast 3NbHBst		breast			pT7T3D (Pharmacia) with a modified polylinker
L0745	Soares retina N2b4HR	retina	eye			pT7T3D (Pharmacia) with a modified polylinker
L0746	Soares retina N2b5HR	retina	eye			pT7T3D (Pharmacia) with a modified polylinker
L0747	Soares_fetal_heart_NbHH19W		heart			pT7T3D (Pharmacia) with a modified polylinker
L0748	Soares fetal liver spleen INFLS		Liver and Spleen			pT7T3D (Pharmacia) with a modified polylinker
L0749	Soares_fetal_liver_spleen_INFLS_S1		Liver and Spleen			pT7T3D (Pharmacia) with a modified polylinker
L0750	Soares_fetal_lung_NbHL19W		lung			pT7T3D (Pharmacia) with a modified polylinker
L0751	Soares ovary tumor NbHOT	ovarian tumor	ovary			pT7T3D (Pharmacia) with a modified polylinker
L0752	Soares_parathyroid_tumor_NbHPA	parathyroid tumor	parathyroid gland			pT7T3D (Pharmacia) with a modified polylinker
L0753	Soares_pineal_gland_N3H PG		pineal gland			pT7T3D (Pharmacia) with a modified polylinker
L0754	Soares placenta Nb2HP		placenta			pT7T3D (Pharmacia) with a modified polylinker
L0755	Soares_placenta_8to9weeks_2NbHP8to9W		placenta			pT7T3D (Pharmacia) with a modified polylinker

L0756	Soares_multiple_sclerosis_2NbHMSP	multiple sclerosis lesions				pT7T3D (Pharmacia) with a modified polylinker V_TYPE
L0757	Soares_senescent_fibroblasts_NbHSF	senescent fibroblast				pT7T3D (Pharmacia) with a modified polylinker V_TYPE
L0758	Soares_testis_NHT					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0759	Soares_total_fetus_Nb2H F8_9w					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0761	NCI_CGAP_CLL1	B-cell, chronic lymphocytic leukemia				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0762	NCI_CGAP_Br1.1	breast				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0763	NCI_CGAP_Br2	breast				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0764	NCI_CGAP_Co3	colon				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0766	NCI_CGAP_GCB1	germinal center B cell				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0767	NCI_CGAP_GC3	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0768	NCI_CGAP_GC4	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0769	NCI_CGAP_Brn25	anaplastic oligodendroglioma	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0770	NCI_CGAP_Brn23	glioblastoma (pooled)	brain			pT7T3D-Pac (Pharmacia)

						with a modified polylinker
L0771	NCI_CGAP_Co8	adenocarcinoma	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0772	NCI_CGAP_Co10	colon tumor RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0773	NCI_CGAP_Co9	colon tumor RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0774	NCI_CGAP_Kid3		kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0775	NCI_CGAP_Kid5	2 pooled tumors (clear cell type)	kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0776	NCI_CGAP_Lu5	carcinoid	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0777	Soares_NhHMPu_S1	Pooled human melanocyte, fetal heart, and pregnant	mixed (see below)			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0779	Soares_NFL_T_GBC_S1		pooled			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0780	Soares_NSF_F8_9W_OT_PA_P_S1		pooled			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0783	NCI_CGAP_Pr22	normal prostate	prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0784	NCI_CGAP_Lei2	leiomyosarcoma	soft tissue			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0785	Barstead spleen HPLRB2		spleen			pT7T3D-Pac (Pharmacia) with a modified polylinker

L0786	Soares_NbHFB		whole brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0787	NCI_CGAP_Sub1					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0788	NCI_CGAP_Sub2					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0789	NCI_CGAP_Sub3					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0790	NCI_CGAP_Sub4					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0791	NCI_CGAP_Sub5					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0792	NCI_CGAP_Sub6					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0794	NCI_CGAP_GC6	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0796	NCI_CGAP_Bm50	medulloblastoma	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0800	NCI_CGAP_Co16	colon tumor, RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0803	NCI_CGAP_Kid11		kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0804	NCI_CGAP_Kid12	2 pooled tumors (clear cell type)	kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0805	NCI_CGAP_Lu24	carcinoid	lung			pT7T3D-Pac (Pharmacia) with a modified

						polylinker
L0806	NCI_CGAP_Lu19	squamous cell carcinoma, poorly differentiated (4	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0809	NCI_CGAP_Pr28		prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L2245	NEM subtracted human fetal kidney cDNA					pUEX1
L2250	Human cerebral cortex	cerebral cortex				
L2251	Human fetal lung	Fetal lung				

**TABLE 5**

OMIM Reference	Description
100678	ACAT2 deficiency
102578	Leukemia, acute promyelocytic, PML/RARA type
102770	Myoadenylate deaminase deficiency
103000	Hemolytic anemia due to adenylate kinase deficiency
103050	Autism, succinylpurinemic
103050	Adenylosuccinase deficiency
103600	[Dysalbuminemic hyperthyroxinemia]
103600	[Dysalbuminemic hyperzincemia], 194470
103600	Analbuminemia
103850	Aldolase A deficiency
104150	[AFP deficiency, congenital]
104150	[Hereditary persistence of alpha-fetoprotein]
104170	NAGA deficiency, mild
104170	Schindler disease
104170	Kanzaki disease
104311	Alzheimer disease-3
104500	Amelogenesis imperfecta-2, hypoplastic local type
104770	Amyloidosis, secondary, susceptibility to
105580	Anal canal carcinoma
106165	Hypertension, essential, 145500
106300	Ankylosing spondylitis
107280	Cerebrovascular disease, occlusive
107280	Alpha-1-antichymotrypsin deficiency
107300	Antithrombin III deficiency
107400	Emphysema
107400	Emphysema-cirrhosis
107470	Atypical mycobacterial infection, familial disseminated, 209950
107470	BCG infection, generalized familial
107470	Tuberculosis, susceptibility to
107670	Apolipoprotein A-II deficiency
107741	Hyperlipoproteinemia, type III
107777	Diabetes insipidus, nephrogenic, autosomal recessive, 222000
108725	Atherosclerosis, susceptibility to
108730	Brody myopathy, 601003
108800	Atrial septal defect, secundum type
108962	Hypertension, salt-resistant
108985	Atrophia areata
109150	Machado-Joseph disease
109270	Renal tubular acidosis, distal, 179800
109270	Spherocytosis, hereditary
109270	[Acanthocytosis, one form]
109270	[Elliptocytosis, Malaysian-Melanesian type]

109270	Hemolytic anemia due to band 3 defect
109560	Leukemia/lymphoma, B-cell, 3
109690	Asthma, nocturnal, susceptibility to
109690	Obesity, susceptibility to
109700	Hemodialysis-related amyloidosis
110700	Vivax malaria, susceptibility to
113705	Ovarian cancer
113705	Breast cancer-1
113721	Breast cancer
113900	Heart block, progressive familial, type I
114208	Malignant hyperthermia susceptibility 5, 601887
114208	Hypokalemic periodic paralysis, 170400
114350	Leukemia, acute myeloid
114835	Monocyte carboxyesterase deficiency
115470	Cat eye syndrome
116800	Cataract, Marner type
116860	Cavernous angiomatous malformations
117700	[Hypoceruloplasminemia, hereditary]
117700	Hemosiderosis, systemic, due to aceruloplasminemia
118210	Charcot-Marie-Tooth neuropathy-2A
118485	Polycystic ovary syndrome with hyperandrogenemia
119300	van der Woude syndrome
120110	Metaphyseal chondrodysplasia, Schmid type
120215	Ehlers-Danlos syndrome, type I, 130000
120215	Ehlers-Danlos syndrome, type II, 130010
120220	Bethlem myopathy, 158810
120240	Bethlem myopathy, 158810
120260	Epiphyseal dysplasia, multiple, type 2, 600204
120280	Stickler syndrome, type III
120280	Marshall syndrome, 154780
120290	OSMED syndrome, 215150
120290	Stickler syndrome, type II, 184840
120435	Muir-Torre syndrome, 158320
120435	Colorectal cancer, hereditary, nonpolyposis, type 1 Ovarian cancer
120550	C1q deficiency, type A
120570	C1q deficiency, type B
120575	C1q deficiency, type C
120620	SLE susceptibility
120620	CR1 deficiency
120700	C3 deficiency
120810	C4 deficiency
120820	C4 deficiency
120900	C5 deficiency
120920	Measles, susceptibility to
120940	C9 deficiency

120950	C8 deficiency, type I
120960	C8 deficiency, type II
121011	Deafness, autosomal dominant 3, 601544
121011	Deafness, autosomal recessive 1, 220290
121014	Heterotaxia, viscerotaxial, autosomal recessive
121360	Myeloid leukemia, acute, M4Eo subtype
121700	Congenital hereditary endothelial dystrophy of cornea
121800	Corneal dystrophy, crystalline, Schnyder
122000	Corneal dystrophy, posterior polymorphous
122500	[Transcortin deficiency]
122560	ACTH deficiency, 201400
122720	Nicotine addiction, protection from
122720	Coumarin resistance, 122700
123000	Craniofacial dysplasia
123101	Craniosynostosis, type 2
123270	[Creatine kinase, brain type, ectopic expression of]
123580	Cataract, congenital, autosomal dominant
123620	Cataract, cerulean, type 2, 601547
123829	Melanoma
123940	White sponge nevus, 193900
124030	Parkinsonism, susceptibility to
124030	Debrisoquine sensitivity
124200	Darier disease (keratosis follicularis)
125490	Dentinogenesis imperfecta-1
125852	Insulin-dependent diabetes mellitus-2
126060	Anemia, megaloblastic, due to DHFR deficiency
126340	Xeroderma pigmentosum, group D, 278730
126391	DNA ligase I deficiency
126452	Autonomic nervous system dysfunction
126452	[Novelty seeking personality]
126600	Drusen, radial, autosomal dominant
126650	Chloride diarrhea, congenital, Finnish type, 214700
126650	Colon cancer
129490	Ectodermal dysplasia-3, anhidrotic
129500	Ectodermal dysplasia, hidrotic
129900	EEC syndrome-1
130410	Glutaric aciduria, type IIB
130500	Elliptocytosis-1
130650	Beckwith-Wiedemann syndrome
131195	Hereditary hemorrhagic telangiectasia-1, 187300
131210	Atherosclerosis, susceptibility to
131400	Eosinophilia, familial
132700	Cylindromatosis
133170	Erythremia
133171	[Erythrocytosis, familial], 133100
133200	Erythrokeratoderma variabilis



133780	Vitreoretinopathy, exudative, familial
134370	Factor H deficiency
134370	Hemolytic-uremic syndrome, 235400
134370	Membranoproliferative glomerulonephritis
134570	Factor XIIB deficiency
134580	Factor XIIB deficiency
134790	Hyperferritinemia-cataract syndrome, 600886
135300	Fibromatosis, gingival
135940	Ichthyosis vulgaris, 146700
136132	[Fish-odor syndrome], 602079
136435	Ovarian dysgenesis, hypergonadotropic, with normal karyotype, 233300
136550	Macular dystrophy, North Carolina type
136836	Fucosyltransferase-6 deficiency
137600	Iridogoniodysgenesis syndrome
138079	Hyperinsulinism, familial, 602485
138079	MODY, type 2, 125851
138140	Glucose transport defect, blood-brain barrier
138190	Diabetes mellitus, noninsulin-dependent
138491	Startle disease, autosomal recessive
138491	Startle disease/hyperekplexia, autosomal dominant, 149400
138491	Hyperekplexia and spastic paraparesis
138570	Non-insulin dependent diabetes mellitus, susceptibility to
138971	Kostmann neutropenia, 202700
138981	Pulmonary alveolar proteinosis, 265120
139190	Gigantism due to GHRF hypersecretion
139190	Isolated growth hormone deficiency due to defect in GHRF
139191	Growth hormone deficient dwarfism
139330	Night blindness, congenital stationary
139350	Epidermolytic hyperkeratosis, 113800
139350	Keratoderma, palmoplantar, nonepidermolytic
139360	Pituitary ACTH-secreting adenoma
140100	[Anhaptoglobinemia]
140100	[Hypohaptoglobinemia]
141900	Methemoglobinemias, beta-
141900	Sickle cell anemia
141900	Thalassemias, beta-
141900	Erythremias, beta-
141900	HPFH, deletion type
141900	Heinz body anemias, beta-
142000	Thalassemia due to Hb Lepore
142000	Thalassemia, delta-
142200	HPFH, nondeletion type A
142250	HPFH, nondeletion type G
142270	Hereditary persistence of fetal hemoglobin
142360	Thrombophilia due to heparin cofactor II deficiency

142470	[Hereditary persistence of fetal hemoglobin, heterocellular]
142857	Pemphigoid, susceptibility to
142858	Beryllium disease, chronic, susceptibility to
142959	Hand-foot-uterus syndrome, 140000
143200	Wagner syndrome
143200	Erosive vitreoretinopathy
143890	Hypercholesterolemia, familial
144200	Epidermolytic palmoplantar keratoderma
145001	Hyperparathyroidism-jaw tumor syndrome
145260	Pseudohypoadosteronism, type II
145981	Hypocalciuric hypercalcemia, type II
146760	[IgG receptor I, phagocytic, familial deficiency of]
146790	Lupus nephritis, susceptibility to
147061	Allergy and asthma susceptibility
147141	Leukemia, acute lymphoblastic
147280	Hepatocellular carcinoma
147440	Growth retardation with deafness and mental retardation
147557	Epidermolysis bullosa, junctional, with pyloric atresia, 226730
147570	Interferon, immune, deficiency
147575	Myelodysplastic syndrome, preleukemic
147575	Myelogenous leukemia, acute
147575	Macrocytic anemia refractory, of 5q- syndrome, 153550
147781	Atopy, susceptibility to
148040	Epidermolysis bullosa simplex, Koebner, Dowling-Meara, and Weber-Cockayne types, 131900, 131760, 131800
148041	Pachyonychia congenita, Jadassohn-Lewandowsky type, 167200
148043	Meesmann corneal dystrophy, 122100
148065	White sponge nevus, 193900
148066	Epidermolysis bullosa simplex, Koebner, Dowling-Meara, and Weber-Cockayne types, 131900, 131760, 131800
148066	Epidermolysis bullosa simplex, recessive, 601001
148067	Nonepidermolytic palmoplantar keratoderma, 600962
148067	Pachyonychia congenita, Jadassohn-Lewandowsky type, 167200
148069	Pachyonychia congenita, Jackson-Lawler type, 167210
148070	Liver disease, susceptibility to, from hepatotoxins or viruses
148080	Epidermolytic hyperkeratosis, 113800
148900	Klippel-Feil syndrome with laryngeal malformation
150000	Exertional myoglobinuria due to deficiency of LDH-A
150210	Lactoferrin-deficient neutrophils, 245480
150240	Cutis laxa, marfanoid neonatal type
150250	Larsen syndrome, autosomal dominant
150270	Laryngeal adductor paralysis
150292	Epidermolysis bullosa, Herlitz junctional type, 226700
150310	Epidermolysis bullosa, Herlitz junctional type, 226700
150310	Epidermolysis bullosa, generalized atrophic benign, 226650
151385	Leukemia, acute myeloid

151410	Leukemia, chronic myeloid
151440	Leukemia, T-cell acute lymphoblastoid
151670	Hepatic lipase deficiency
152200	Coronary artery disease, susceptibility to
152445	Vohwinkel syndrome, 124500
152445	Erythrokeratoderma, progressive symmetric, 602036
152760	Hypogonadotropic hypogonadism due to GNRH deficiency, 227200
152780	Hypogonadism, hypergonadotropic
152780	Male pseudohermaphroditism due to defective LH
152790	Precocious puberty, male, 176410
152790	Leydig cell hypoplasia
153455	Cutis laxa, recessive, type I, 219100
153880	Macular dystrophy, dominant cystoid
154275	Malignant hyperthermia susceptibility 2
154276	Malignant hyperthermia susceptibility 3
154500	Treacher Collins mandibulofacial dysostosis
154550	Carbohydrate-deficient glycoprotein syndrome, type Ib, 602579
156225	Muscular dystrophy, congenital merosin-deficient
157170	Holoprosencephaly-2
157640	PEO with mitochondrial DNA deletions, type 1
159000	Muscular dystrophy, limb-girdle, type 1A
159001	Muscular dystrophy, limb-girdle, type 1B
159440	Charcot-Marie-Tooth neuropathy-1B, 118200
159440	Dejerine-Sottas disease, myelin P-related, 145900
159440	Hypomyelination, congenital
160781	Cardiomyopathy, hypertrophic, mid-left ventricular chamber type
160900	Myotonic dystrophy
162200	Neurofibromatosis, type 1
162200	Watson syndrome, 193520
164040	Leukemia, acute promyelocytic, NPM/RARA type
164200	Oculodentodigital dysplasia
164200	Syndactyly, type III, 186100
164500	Spinocerebellar ataxia-7
164731	Ovarian carcinoma, 167000
164860	Renal cell carcinoma, papillary, familial and sporadic
164953	Liposarcoma
165215	3q21q26 syndrome
165500	Optic atrophy 1
166600	Osteopetrosis, AD, type II
166800	Otosclerosis
167000	Ovarian cancer, serous
167250	Paget disease of bone
167409	Optic nerve coloboma with renal disease, 120330
167415	Hypothyroidism, congenital, due to thyroid dysgenesis or hypoplasia

168360	Paraneoplastic sensory neuropathy
168468	Metaphyseal chondrodysplasia, Murk Jansen type, 156400
168610	Parkinsonism-dementia with pallidopontonigral degeneration
169600	Hailey-Hailey disease
170261	Bare lymphocyte syndrome, type I, due to TAP2 deficiency
170650	Periodontitis, juvenile
170995	Zellweger syndrome-2
171190	Hypertension, essential, 145500
171760	Hypophosphatasia, adult, 146300
171760	Hypophosphatasia, infantile, 241500
171860	Hemolytic anemia due to phosphofructokinase deficiency
172400	Hemolytic anemia due to glucosephosphate isomerase deficiency
172400	Hydrops fetalis, one form
172411	Colorectal cancer, resistance to
172471	Glycogenosis, hepatic, autosomal
172490	Phosphorylase kinase deficiency of liver and muscle, 261750
173350	Plasminogen Tochigi disease
173350	Plasminogen deficiency, types I and II
173350	Thrombophilia, dysplasminogenemic
173360	Thrombophilia due to excessive plasminogen activator inhibitor
173360	Hemorrhagic diathesis due to PAI1 deficiency
173610	Platelet alpha/delta storage pool deficiency
173850	Polio, susceptibility to
174000	Medullary cystic kidney disease, AD
174900	Polyposis, juvenile intestinal
176000	Porphyria, acute intermittent
176100	Porphyria cutanea tarda
176100	Porphyria, hepatoerythropoietic
176705	Breast cancer, sporadic
176730	Diabetes mellitus, rare form
176730	Hyperproinsulinemia, familial
176730	MODY, one form
176830	Obesity, adrenal insufficiency, and red hair
176830	ACTH deficiency
176860	Purpura fulminans, neonatal
176860	Thrombophilia due to protein C deficiency
176943	Apert syndrome, 101200
176943	Pfeiffer syndrome, 101600
176943	Beare-Stevenson cutis gyrata syndrome, 123790
176943	Crouzon craniofacial dysostosis, 123500
176943	Jackson-Weiss syndrome, 123150
176947	Selective T-cell defect
177070	Spherocytosis, hereditary, Japanese type
177070	Hermansky-Pudlak syndrome, 203300
177900	Psoriasis susceptibility-1
178300	Ptosis, hereditary congenital, 1

178640	Pulmonary alveolar proteinosis, congenital, 265120
179450	Ragweed sensitivity
179755	Renal cell carcinoma, papillary, 1
179820	[Hyperproreninemia]
180020	Retinal cone dystrophy-1
180071	Retinitis pigmentosa, autosomal recessive
180100	Retinitis pigmentosa-1
180104	Retinitis pigmentosa-9
180105	Retinitis pigmentosa-10
180250	Retinol binding protein, deficiency of
180297	Anemia, hemolytic, Rh-null, suppressor type, 268150
180380	Night blindness, congenital stationery, rhodopsin-related
180380	Retinitis pigmentosa, autosomal recessive
180380	Retinitis pigmentosa-4, autosomal dominant
180901	Malignant hyperthermia susceptibility 1, 145600
180901	Central core disease, 117000
181405	Scapuloperoneal spinal muscular atrophy, New England type
181430	Scapuloperoneal syndrome, myopathic type
181460	Schistosoma mansoni, susceptibility/resistance to
181510	Schizophrenia
182138	Anxiety-related personality traits
182280	Small-cell cancer of lung
182380	Glucose/galactose malabsorption
182381	Renal glucosuria, 253100
182500	Cataract, congenital
182600	Spastic paraplegia-3A
182601	Spastic paraplegia-4
182860	Pyropoikilocytosis
182860	Spherocytosis, recessive
182860	Elliptocytosis-2
185000	Stomatocytosis I
185430	Atherosclerosis, susceptibility to
185470	Myopathy due to succinate dehydrogenase deficiency
185800	Symphalangism, proximal
186580	Arthrocutaneouveal granulomatosis
186770	Leukemia, T-cell acute lymphocytic
186780	CD3, zeta chain, deficiency
186880	Leukemia/lymphoma, T-cell
186921	Leukemia, T-cell acute lymphoblastic
186960	Leukemia/lymphoma, T-cell
187040	Leukemia-1, T-cell acute lymphoblastic
188040	Thrombophilia due to thrombomodulin defect
188070	Bleeding disorder due to defective thromboxane A2 receptor
188400	Velocardiofacial syndrome, 192430
188400	DiGeorge syndrome
188826	Sorsby fundus dystrophy, 136900

189800	Preeclampsia/eclampsia
189980	Leukemia, chronic myeloid
190000	Atransferrinemia
190020	Bladder cancer, 109800
190040	Dermatofibrosarcoma protuberans
190040	Giant-cell fibroblastoma
190040	Meningioma, SIS-related
190100	Geniospasm
190195	Ichthyosiform erythroderma, congenital, 242100
190195	Ichthyosis, lamellar, autosomal recessive, 242300
190198	Leukemia, T-cell acute lymphoblastic
190685	Down syndrome
190900	Colorblindness, tritan
191030	Nemaline myopathy-1, 161800
191044	Cardiomyopathy, familial hypertrophic
191045	Cardiomyopathy, familial hypertrophic, 2, 115195
191290	Segawa syndrome, recessive
191315	Insensitivity to pain, congenital, with anhidrosis, 256800
192090	Ovarian carcinoma
192090	Breast cancer, lobular
192090	Endometrial carcinoma
192090	Gastric cancer, familial, 137215
192500	Jervell and Lange-Nielsen syndrome, 220400
192500	Long QT syndrome-1
194071	Wilms tumor, type 2
194071	Adrenocortical carcinoma, hereditary, 202300
200150	Choreoacanthocytosis
200350	Acetyl-CoA carboxylase deficiency
201470	Acyl-CoA dehydrogenase, short-chain, deficiency of
201910	Adrenal hyperplasia, congenital, due to 21-hydroxylase deficiency
202200	Glucocorticoid deficiency, due to ACTH unresponsiveness
203310	Ocular albinism, autosomal recessive
203500	Alkaptonuria
204500	Ceroid-lipofuscinosis, neuronal 2, classic late infantile
205900	Anemia, Diamond-Blackfan
207750	Hyperlipoproteinemia, type Ib
207800	Argininemia
208100	Arthrogryposis multiplex congenita, neurogenic
208250	Jacobs syndrome
210900	Bloom syndrome
214400	Charcot-Marie-Tooth neuropathy-4A
216550	Cohen syndrome
216900	Achromatopsia
217000	C2 deficiency
217030	C3b inactivator deficiency

217050	C6 deficiency
217050	Combined C6/C7 deficiency
217070	C7 deficiency
217095	Conotruncal cardiac anomalies
217300	Cornea plana congenita, recessive
217800	Macular corneal dystrophy
218000	Andermann syndrome
218030	Apparent mineralocorticoid excess, hypertension due to
221770	Polycystic lipomembranous osteodysplasia with sclerosing leukencephalopathy
221820	Gliososis, familial progressive subcortical
222100	Diabetes mellitus, insulin-dependent-1
222600	Atelosteogenesis II, 256050
222600	Achondrogenesis Ib, 600972
222600	Diastrophic dysplasia
222700	Lysinuric protein intolerance
222800	Hemolytic anemia due to bisphosphoglycerate mutase deficiency
222900	Sucrose intolerance
223900	Dysautonomia, familial
224100	Congenital dyserythropoietic anemia II
225500	Ellis-van Creveld syndrome
227220	[Eye color, brown]
227646	Fanconi anemia, type D
229300	Friedreich ataxia
229300	Friedreich ataxia with retained reflexes
229600	Fructose intolerance
229800	[Fructosuria]
230000	Fucosidosis
230350	Galactose epimerase deficiency
230400	Galactosemia
230800	Gaucher disease
230800	Gaucher disease with cardiovascular calcification
231550	Achalasia-addisonianism-alacrimia syndrome
231680	Glutaricaciduria, type IIA
232050	Propionicacidemia, type II or pccB type
232200	Glycogen storage disease I
232400	Glycogen storage disease IIIa
232400	Glycogen storage disease IIIb
233100	[Renal glucosuria]
233710	Chronic granulomatous disease due to deficiency of NCF-2
234000	Factor XII deficiency
235200	Hemochromatosis
235800	[Histidinemia]
236100	Holoprosencephaly-1
236200	Homocystinuria, B6-responsive and nonresponsive types
236730	Urofacial syndrome

238310	Hyperglycinemia, nonketotic, type II
239100	Van Buchem disease
240300	Autoimmune polyglandular disease, type I
243500	Isovalericacidemia
245050	Ketoacidosis due to SCOT deficiency
245200	Krabbe disease
245900	Norum disease
245900	Fish-eye disease
246450	HMG-CoA lyase deficiency
246530	Leukotriene C4 synthase deficiency
246900	Lipoamide dehydrogenase deficiency
247200	Miller-Dieker lissencephaly syndrome
248510	Mannosidosis, beta-
248600	Maple syrup urine disease, type Ia
248611	Maple syrup urine disease, type Ib
249000	Meckel syndrome
250100	Metachromatic leukodystrophy
250250	Cartilage-hair hypoplasia
250800	Methemoglobinemia, type I
250800	Methemoglobinemia, type II
251000	Methylmalonicaciduria, mutase deficiency type
251600	Microphthalmia, autosomal recessive
252920	Sanfilippo syndrome, type B
252940	Sanfilippo syndrome, type D
253200	Maroteaux-Lamy syndrome, several forms
253250	Mulibrey nanism
253700	Muscular dystrophy, limb-girdle, type 2C
253800	Walker-Warburg syndrome, 236670
253800	Fukuyama type congenital muscular dystrophy
254210	Myasthenia gravis, familial infantile
255800	Schwartz-Jampel syndrome
256100	Nephronophthisis, juvenile
256540	Galactosialidosis
256550	Sialidosis, type I
256550	Sialidosis, type II
257200	Niemann-Pick disease, type A
257200	Niemann-Pick disease, type B
258501	3-methylglutaconicaciduria, type III
258870	Gyrate atrophy of choroid and retina with ornithinemia, B6 responsive or unresponsive
261510	Pseudo-Zellweger syndrome
261600	Phenylketonuria
261600	[Hyperphenylalaninemia, mild]
261640	Phenylketonuria due to PTS deficiency
263200	Polycystic kidney disease, autosomal recessive
263700	Porphyria, congenital erythropoietic



264300	Pseudohermaphroditism, male, with gynecomastia
264700	Pseudo-vitamin D dependency rickets 1
266200	Anemia, hemolytic, due to PK deficiency
266600	Inflammatory bowel disease-1
267750	Knobloch syndrome
268800	Sandhoff disease, infantile, juvenile, and adult forms
268800	Spinal muscular atrophy, HEXB-related
269920	Salla disease
270100	Situs inversus viscerum
271245	Spinocerebellar ataxia-8, infantile, with sensory neuropathy
271900	Canavan disease
272750	GM2-gangliosidosis, AB variant
272800	Tay-Sachs disease
272800	[Hex A pseudodeficiency]
272800	GM2-gangliosidosis, juvenile, adult
273300	Male germ cell tumor
274600	Pendred syndrome
274600	Deafness, autosomal recessive 4
276600	Tyrosinemia, type II
276700	Tyrosinemia, type I
276900	Usher syndrome, type 1A
276902	Usher syndrome, type 3
278000	Wolman disease
278000	Cholesteryl ester storage disease
278300	Xanthinuria, type I
278760	Xeroderma pigmentosum, group F
300031	Mental retardation, X-linked, FRAXF type
300044	Wernicke-Korsakoff syndrome, susceptibility to
300048	Intestinal pseudoobstruction, neuronal, X-linked
300049	Nodular heterotopia, bilateral periventricular
300049	BPNH/MR syndrome
300055	Mental retardation with psychosis, pyramidal signs, and macroorchidism
300100	Adrenoleukodystrophy
300100	Adrenomyeloneuropathy
300104	Mental retardation, X-linked nonspecific, 309541
300126	Dyskeratosis congenita-1, 305000
301201	Amelogenesis imperfecta-3, hypoplastic type
301220	Partington syndrome II
301590	Anophthalmos-1
302060	Noncompaction of left ventricular myocardium, isolated
302060	Barth syndrome
302060	Cardiomyopathy, X-linked dilated, 300069
302060	Endocardial fibroelastosis-2
302350	Nance-Horan syndrome
302960	Chondrodysplasia punctata, X-linked dominant

303700	Colorblindness, blue monochromatic
303800	Colorblindness, deutan
303900	Colorblindness, protan
304040	Charcot-Marie-Tooth neuropathy, X-linked-1, dominant, 302800
304800	Diabetes insipidus, nephrogenic
305100	Anhidrotic ectodermal dysplasia
305450	FG syndrome
305900	Favism
305900	G6PD deficiency
305900	Hemolytic anemia due to G6PD deficiency
306400	Chronic granulomatous disease, X-linked
306700	Hemophilia A
306995	[Homosexuality, male]
308310	Incontinentia pigmenti, familial
308840	Spastic paraplegia, 312900
308840	Hydrocephalus due to aqueductal stenosis, 307000
308840	MASA syndrome, 303350
309200	Manic-depressive illness, X-linked
309470	Mental retardation, X-linked, syndromic-3, with spastic diplegia
309548	Mental retardation, X-linked, FRAXE type
309585	Mental retardation, X-linked, syndromic-6, with gynecomastia and obesity
309600	Allan-Herndon syndrome
309605	Mental retardation, X-linked, syndromic-4, with congenital contractures and low fingertip arches
309620	Mental retardation-skeletal dysplasia
309900	Mucopolysaccharidosis II
310300	Emery-Dreifuss muscular dystrophy
310400	Myotubular myopathy, X-linked
310460	Myopia-1
310460	Bornholm eye disease
311250	Ornithine transcarbamylase deficiency
311300	Otopalatodigital syndrome, type I
311360	Ovarian failure, premature
311510	Waisman parkinsonism-mental retardation syndrome
312040	N syndrome, 310465
312610	Retinitis pigmentosa-3
312760	Turner syndrome
314250	Dystonia-3, torsion, with parkinsonism, Filipino type
314300	Goeminne TKCR syndrome
314400	Cardiac valvular dysplasia-1
314580	Wieacker-Wolff syndrome
314850	McLeod phenotype
400003	Sertoli-cell-only syndrome
415000	Sertoli-cell-only syndrome
600020	Prostate cancer, 176807

600040	Colorectal cancer
600049	Myelodysplasia syndrome-1
600059	Retinitis pigmentosa-13
600065	Leukocyte adhesion deficiency, 116920
600095	Split hand/foot malformation, type 3
600101	Deafness, autosomal dominant 2
600105	Retinitis pigmentosa-12, autosomal recessive
600119	Muscular dystrophy, Duchenne-like, type 2
600119	Adhalinopathy, primary
600138	Retinitis pigmentosa-11
600163	Long QT syndrome-3
600173	SCID, autosomal recessive, T-negative/B-positive type
600175	Spinal muscular atrophy, congenital nonprogressive, of lower limbs
600179	Leber congenital amaurosis, type I, 204000
600184	Carnitine acetyltransferase deficiency
600194	Ichthyosis bullosa of Siemens, 146800
600202	Dyslexia, specific, 2
600211	Cleidocranial dysplasia, 119600
600223	Spinocerebellar ataxia-4
600231	Palmoplantar keratoderma, Bothnia type
600243	Temperature-sensitive apoptosis
600261	Ehlers-Danlos-like syndrome
600276	Cerebral arteriopathy with subcortical infarcts and leukoencephalopathy, 125310
600281	Non-insulin-dependent diabetes mellitus, 125853
600281	MODY, type 1, 125850
600309	Atrioventricular canal defect-1
600310	Pseudoachondroplasia, 177170
600310	Epiphyseal dysplasia, multiple 1, 132400
600320	Insulin-dependent diabetes mellitus-5
600334	Tibial muscular dystrophy
600354	Spinal muscular atrophy-1, 253300
600354	Spinal muscular atrophy-2, 253550
600354	Spinal muscular atrophy-3, 253400
600374	Bardet-Biedl syndrome 4
600429	[Ii blood group, 110800]
600512	Epilepsy, partial
600536	Myopathy, congenital
600542	Chondrosarcoma, extraskeletal myxoid
600584	Atrial septal defect with atrioventricular conduction defects, 108900
600593	Craniosynostosis, Adelaide type
600650	Myopathy due to CPT II deficiency, 255110
600650	CPT deficiency, hepatic, type II, 600649
600652	Deafness, autosomal dominant 4

600698	Salivary adenoma
600698	Uterine leiomyoma
600698	Lipoma
600698	Lipomatosis, mutiple, 151900
600701	Lipoma
600722	Ceroid lipofuscinosis, neuronal, variant juvenile type, with granular osmiophilic deposits
600722	Ceroid lipofuscinosis, neuronal-1, infantile, 256730
600757	Orofacial cleft-3
600759	Alzheimer disease-4
600760	Pseudohypoaldosteronism, type I, 264350
600760	Liddle syndrome, 177200
600761	Pseudohypoaldosteronism, type I, 264350
600761	Liddle syndrome, 177200
600807	Bronchial asthma
600808	Enuresis, nocturnal, 2
600837	Hirschsprung disease, 142623
600839	Bartter syndrome, 241200
600850	Schizophrenia disorder-4
600856	Beckwith-Wiedemann syndrome, 130650
600881	Cataract, congenital, zonular, with sutural opacities
600882	Charcot-Marie-Tooth neuropathy-2B
600883	Diabetes mellitus, insulin-dependent, 8
600884	Cardiomyopathy, familial dilated 1B
600887	Endometrial carcinoma
600897	Cataract, zonular pulverulent-1, 116200
600899	Severe combined immunodeficiency, type I, 202500
600918	Cystinuria, type III
600919	Long QT syndrome-4 with sinus bradycardia
600923	Porphyria variegata, 176200
600946	Short stature, autosomal dominant, with normal serum growth hormone binding protein
600946	Short stature, idiopathic
600946	Laron dwarfism, 262500
600956	Persistent Mullerian duct syndrome, type II, 261550
600957	Persistent Mullerian duct syndrome, type I, 261550
600968	Gitelman syndrome, 263800
600971	Deafness, autosomal recessive 6
600974	Deafness, autosomal recessive 7
600977	Cone dystrophy, progressive
600994	Deafness, autosomal dominant 5
600995	Nephrotic syndrome, idiopathic, steroid-resistant
600998	Bleeding diathesis due to GNAQ deficiency
601002	5-oxoprolinuria, 266130
601002	Hemolytic anemia due to glutathione synthetase deficiency, 231900

601071	Deafness, autosomal recessive 9
601072	Deafness, autosomal recessive 8
601105	Pycnodysostosis, 265800
601107	Dubin-Johnson syndrome, 237500
601130	Tolbutamide poor metabolizer
601145	Epilepsy, progressive myoclonic 1, 254800
601146	Brachydactyly, type C, 113100
601146	Acromesomelic dysplasia, Hunter-Thompson type, 201250
601146	Chondrodysplasia, Grebe type, 200700
601154	Cardiomyopathy, dilated, 1E
601199	Neonatal hyperparathyroidism, 239200
601199	Hypocalcemia, autosomal dominant, 601198
601199	Hypocalciuric hypercalcemia, type I, 145980
601202	Cataract, anterior polar-2
601208	Insulin-dependent diabetes mellitus-11
601226	Progressive external ophthalmoplegia, type 2
601238	Cerebellar ataxia, Cayman type
601267	HIV infection, susceptibility/resistance to
601284	Hereditary hemorrhagic telangiectasia-2, 600376
601313	Polycystic kidney disease, adult type I, 173900
601316	Deafness, autosomal dominant 10
601363	Wilms tumor, type 4
601373	HIV infection, susceptibility/resistance to
601402	Leukemia, myeloid, acute
601406	B-cell non-Hodgkin lymphoma, high-grade
601410	Diabetes mellitus, transient neonatal
601411	Muscular dystrophy, limb-girdle, type 2F, 601287
601412	Deafness, autosomal dominant 7
601414	Retinitis pigmentosa-18
601471	Moebius syndrome-2
601493	Cardiomyopathy, dilated 1C
601494	Cardiomyopathy, familial, dilated-2
601518	Prostate cancer, hereditary, 1, 176807
601542	Rieger syndrome, type 1, 180500
601545	Lissencephaly-1
601596	Charcot-Marie-Tooth neuropathy, demyelinating
601604	Mycobacterial and salmonella infections, susceptibility to
601607	Rhabdoid tumors
601620	Holt-Oram syndrome, 142900
601621	Ulnar-mammary syndrome, 181450
601649	Blepharophimosis, epicanthus inversus, and ptosis, type 2
601652	Glaucoma 1A, primary open angle, juvenile-onset, 137750
601669	Hirschsprung disease, one form
601680	Distal arthrogryposis, type 2B
601682	Glaucoma 1C, primary open angle
601690	Platelet-activating factor acetylhydrolase deficiency

601691	Retinitis pigmentosa-19, 601718
601691	Stargardt disease-1, 248200
601691	Cone-rod dystrophy 3
601691	Fundus flavimaculatus with macular dystrophy, 248200
601718	Retinitis pigmentosa-19
601757	Rhizomelic chondrodysplasia punctata, type 1, 215100
601769	Osteoporosis, involutional
601769	Rickets, vitamin D-resistant, 277440
601771	Glaucoma 3A, primary infantile, 231300
601777	Cone dystrophy, progressive
601780	Ceroid-lipofuscinosis, neuronal-6, variant late infantile
601800	[Hair color, brown]
601841	Protein C inhibitor deficiency
601843	Hypothyroidism, congenital, 274400
601844	Pseudohypoadosteronism type II
601846	Muscular dystrophy with rimmed vacuoles
601863	Bare lymphocyte syndrome, complementation group C
601868	Deafness, autosomal dominant 13
601885	Cataract, zonular pulverulent-2
601916	Pancreatic cancer
601928	Monilethrix, 158000
601954	Muscular dystrophy, limb-girdle, type 2G
601969	Glioblastoma multiforme, 137800
601969	Medulloblastoma, 155255
601975	Ectodermal dysplasia/skin fragility syndrome
602014	Hypomagnesemia with secondary hypocalcemia
602066	Convulsions, infantile and paroxysmal choreoathetosis
602067	Cardiomyopathy, dilated, 1F
602081	Speech-language disorder-1
602082	Corneal dystrophy, Thiel-Behnke type
602084	Endometrial carcinoma
602088	Nephronophthisis, infantile
602089	Hemangioma, capillary, hereditary
602092	Deafness, autosomal recessive 18
602094	Lipodystrophy, familial partial
602116	Glioma
602134	Tremor, familial essential, 2
602136	Refsum disease, infantile, 266510
602136	Zellweger syndrome-1, 214100
602136	Adrenoleukodystrophy, neonatal, 202370
602153	Monilethrix, 158000
602216	Peutz-Jeghers syndrome, 175200
602221	Stem-cell leukemia/lymphoma syndrome
602225	Cone-rod retinal dystrophy-2, 120970
602225	Leber congenital amaurosis, type III
602279	Oculopharyngeal muscular dystrophy, 164300

602279	Oculopharyngeal muscular dystrophy, autosomal recessive, 257950
602280	Retinitis pigmentosa-14, 600132
602363	Ellis-van Creveld-like syndrome
602403	Alzheimer disease, susceptibility to
602421	Sweat chloride elevation without CF
602421	Congenital bilateral absence of vas deferens, 277180
602421	Cystic fibrosis, 219700
602447	Coronary artery disease, susceptibility to
602475	Ossification of posterior longitudinal ligament of spine
602476	Febrile convulsions, familial, 1
602477	Febrile convulsions, familial, 2
602491	Hyperlipidemia, familial combined, 1
602544	Parkinson disease, juvenile, type 2, 600116
602568	Homocystinuria-megaloblastic anemia, cbl E type, 236270
602574	Deafness, autosomal dominant 12, 601842
602574	Deafness, autosomal dominant 8, 601543
602575	Nail-patella syndrome with open-angle glaucoma, 137750
602575	Nail-patella syndrome, 161200
602629	Dystonia-6, torsion
602631	Rhabdomyosarcoma, 268210
602631	Breast Cancer
602669	Anterior segment mesenchymal dysgenesis and cataract, 107250
602669	Cataract, congenital
602685	Mental retardation, severe, with spasticity and tapetoretinal degeneration
602716	Nephrosis-1, congenital, Finnish type, 256300
602771	Muscular dystrophy, congenital, with early spine rigidity
602772	Retinitis pigmentosa-24

*Polynucleotide and Polypeptide Variants*

[091] The present invention is also directed to variants of the immune/hematopoietic associated polynucleotide sequence disclosed in SEQ ID NO:X or the complementary strand thereto, nucleotide sequences encoding the polypeptide of SEQ ID NO:Y, the nucleotide sequence of SEQ ID NO:X encoding the polypeptide sequence as defined in column 6 of Table 1A, nucleotide sequences encoding the polypeptide as defined in column 6 of Table 1A, the nucleotide sequence as defined in columns 8 and 9 of Table 2, nucleotide sequences encoding the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2, the nucleotide sequence as defined in column 6 of Table 1B, nucleotide sequences encoding the polypeptide encoded by the nucleotide sequence as defined in column 6 of Table 1B, the cDNA sequence contained in Clone ID NO:Z, and/or nucleotide sequences encoding a polypeptide encoded by the cDNA sequence contained in Clone ID NO:Z.

[092] The present invention also encompasses variants of the polypeptide sequence disclosed in SEQ ID NO:Y, a polypeptide sequence as defined in column 6 of Table 1A, a polypeptide sequence encoded by the polynucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2, a polypeptide sequence encoded by the nucleotide sequence as defined in column 6 of Table 1B, a polypeptide sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, and/or a polypeptide sequence encoded by the cDNA sequence contained in Clone ID NO:Z.

[093] "Variant" refers to a polynucleotide or polypeptide differing from the polynucleotide or polypeptide of the present invention, but retaining essential properties thereof. Generally, variants are overall closely similar, and, in many regions, identical to the polynucleotide or polypeptide of the present invention.

[094] Thus, one aspect of the invention provides an isolated nucleic acid molecule comprising, or alternatively consisting of, a polynucleotide having a nucleotide sequence selected from the group consisting of: (a) a nucleotide sequence described in SEQ ID NO:X or contained in the cDNA sequence of Clone ID NO:Z; (b) a nucleotide sequence in SEQ ID NO:X or the cDNA in Clone ID NO:Z which encodes a mature immune/hematopoietic associated polypeptide; (c) a nucleotide sequence in SEQ ID NO:X or the cDNA sequence of Clone ID NO:Z, which encodes a biologically active



fragment of an immune/hematopoietic associated polypeptide; (d) a nucleotide sequence in SEQ ID NO:X or the cDNA sequence of Clone ID NO:Z, which encodes an antigenic fragment of an immune/hematopoietic associated polypeptide; (e) a nucleotide sequence encoding an immune/hematopoietic associated polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (f) a nucleotide sequence encoding a mature immune/hematopoietic associated polypeptide of the amino acid sequence of SEQ ID NO:Y or the amino acid sequence encoded by the cDNA in Clone ID NO:Z; (g) a nucleotide sequence encoding a biologically active fragment of an immune/hematopoietic associated polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (h) a nucleotide sequence encoding an antigenic fragment of an immune/hematopoietic associated polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; and (i) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), or (h), above.

[095] The present invention is also directed to nucleic acid molecules which comprise, or alternatively consist of, a nucleotide sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100%, identical to, for example, any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), or (i) above, the nucleotide coding sequence in SEQ ID NO:X or the complementary strand thereto, the nucleotide coding sequence of the cDNA contained in Clone ID NO:Z or the complementary strand thereto, a nucleotide sequence encoding the polypeptide of SEQ ID NO:Y, a nucleotide sequence encoding a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, a nucleotide sequence encoding the polypeptide encoded by the cDNA contained in Clone ID NO:Z, the nucleotide coding sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto, a nucleotide sequence encoding the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto, the nucleotide coding sequence in SEQ ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto, a nucleotide sequence encoding the polypeptide encoded by the nucleotide sequence in SEQ

ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto, the nucleotide sequence in SEQ ID NO:X encoding the polypeptide sequence as defined in column 6 of Table 1A or the complementary strand thereto, nucleotide sequences encoding a polypeptide as defined in column 6 of Table 1A or the complementary strand thereto, and/or polynucleotide fragments of any of these nucleic acid molecules (e.g., those fragments described herein). Polynucleotides which hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides and nucleic acids.

[096] In a preferred embodiment, the invention encompasses nucleic acid molecules which comprise, or alternatively, consist of a polynucleotide which hybridizes under stringent hybridization conditions, or alternatively, under lower stringency conditions, to a polynucleotide in (a), (b), (c), (d), (e), (f), (g), (h), or (i) above, as are polypeptides encoded by these polynucleotides. In another preferred embodiment, polynucleotides which hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[097] In another embodiment, the invention provides a purified protein comprising, or alternatively consisting of, a polypeptide having an amino acid sequence selected from the group consisting of: (a) the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (b) the amino acid sequence of a mature immune/hematopoietic associated polypeptide having the amino acid sequence of SEQ ID NO:Y or the amino acid sequence encoded by the cDNA in Clone ID NO:Z; (c) the amino acid sequence of a biologically active fragment of an immune/hematopoietic associated polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; and (d) the amino acid sequence of an antigenic fragment of an immune/hematopoietic associated polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z.

[098] The present invention is also directed to proteins which comprise, or alternatively consist of, an amino acid sequence which is at least 80%, 85%, 90%, 95%,

96%, 97%, 98%, 99% or 100%, identical to, for example, any of the amino acid sequences in (a), (b), (c), or (d), above, the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence encoded by the cDNA contained in Clone ID NO:Z, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:B as defined in column 6 of Table 1B, the amino acid sequence as defined in column 6 of Table 1A, an amino acid sequence encoded by the nucleotide sequence in SEQ ID NO:X, and an amino acid sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X. Fragments of these polypeptides are also provided (e.g., those fragments described herein). Further proteins encoded by polynucleotides which hybridize to the complement of the nucleic acid molecules encoding these amino acid sequences under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are the polynucleotides encoding these proteins.

[099] By a nucleic acid having a nucleotide sequence at least, for example, 95% "identical" to a reference nucleotide sequence of the present invention, it is intended that the nucleotide sequence of the nucleic acid is identical to the reference sequence except that the nucleotide sequence may include up to five point mutations per each 100 nucleotides of the reference nucleotide sequence encoding the polypeptide. In other words, to obtain a nucleic acid having a nucleotide sequence at least 95% identical to a reference nucleotide sequence, up to 5% of the nucleotides in the reference sequence may be deleted or substituted with another nucleotide, or a number of nucleotides up to 5% of the total nucleotides in the reference sequence may be inserted into the reference sequence. The query sequence may be an entire sequence referred to in Table 1A or 2 as the ORF (open reading frame), or any fragment specified, as described herein.

[0100] As a practical matter, whether any particular nucleic acid molecule or polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a nucleotide sequence of the present invention can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci. 6:237-245

(1990)). In a sequence alignment the query and subject sequences are both DNA sequences. An RNA sequence can be compared by converting U's to T's. The result of said global sequence alignment is expressed as percent identity. Preferred parameters used in a FASTDB alignment of DNA sequences to calculate percent identity are: Matrix=Unitary, k-tuple=4, Mismatch Penalty=1, Joining Penalty=30, Randomization Group Length=0, Cutoff Score=1, Gap Penalty=5, Gap Size Penalty 0.05, Window Size=500 or the length of the subject nucleotide sequence, whichever is shorter.

[0101] If the subject sequence is shorter than the query sequence because of 5' or 3' deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for 5' and 3' truncations of the subject sequence when calculating percent identity. For subject sequences truncated at the 5' or 3' ends, relative to the query sequence, the percent identity is corrected by calculating the number of bases of the query sequence that are 5' and 3' of the subject sequence, which are not matched/aligned, as a percent of the total bases of the query sequence. Whether a nucleotide is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This corrected score is what is used for the purposes of the present invention. Only bases outside the 5' and 3' bases of the subject sequence, as displayed by the FASTDB alignment, which are not matched/aligned with the query sequence, are calculated for the purposes of manually adjusting the percent identity score.

[0102] For example, a 90 base subject sequence is aligned to a 100 base query sequence to determine percent identity. The deletions occur at the 5' end of the subject sequence and therefore, the FASTDB alignment does not show a matched/alignment of the first 10 bases at 5' end. The 10 unpaired bases represent 10% of the sequence (number of bases at the 5' and 3' ends not matched/total number of bases in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 bases were perfectly matched the final percent identity would be 90%. In another example, a 90 base subject sequence is compared with a 100 base query sequence. This time the deletions are internal deletions so that there are no bases on the 5' or 3' of the subject sequence which are not matched/aligned with the query. In this case

the percent identity calculated by FASTDB is not manually corrected. Once again, only bases 5' and 3' of the subject sequence which are not matched/aligned with the query sequence are manually corrected for. No other manual corrections are to be made for the purposes of the present invention.

[0103] By a polypeptide having an amino acid sequence at least, for example, 95% "identical" to a query amino acid sequence of the present invention, it is intended that the amino acid sequence of the subject polypeptide is identical to the query sequence except that the subject polypeptide sequence may include up to five amino acid alterations per each 100 amino acids of the query amino acid sequence. In other words, to obtain a polypeptide having an amino acid sequence at least 95% identical to a query amino acid sequence, up to 5% of the amino acid residues in the subject sequence may be inserted, deleted, (indels) or substituted with another amino acid. These alterations of the reference sequence may occur at the amino or carboxy terminal positions of the reference amino acid sequence or anywhere between those terminal positions, interspersed either individually among residues in the reference sequence or in one or more contiguous groups within the reference sequence.

[0104] As a practical matter, whether any particular polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to, for instance, the amino acid sequence of a polypeptide referred to in Table 1A (e.g., an amino acid sequence identified in columns 5 or 6) or Table 2 (e.g., the amino acid sequence of the polypeptide encoded by the polynucleotide sequence defined in columns 8 and 9 of Table 2) or a fragment thereof, the amino acid sequence of the polypeptide encoded by the polynucleotide sequence in SEQ ID NO:B as defined in column 6 of Table 1B or a fragment thereof, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X or a fragment thereof, or an amino acid sequence of the polypeptide encoded by cDNA contained in Clone ID NO:Z, or a fragment thereof, can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci.6:237-245 (1990)). In a sequence alignment the query and subject sequences are either both nucleotide sequences or both amino acid sequences. The result of said global

sequence alignment is expressed as percent identity. Preferred parameters used in a FASTDB amino acid alignment are: Matrix=PAM 0, k-tuple=2, Mismatch Penalty=1, Joining Penalty=20, Randomization Group Length=0, Cutoff Score=1, Window Size=sequence length, Gap Penalty=5, Gap Size Penalty=0.05, Window Size=500 or the length of the subject amino acid sequence, whichever is shorter.

[0105] If the subject sequence is shorter than the query sequence due to N- or C-terminal deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for N- and C-terminal truncations of the subject sequence when calculating global percent identity. For subject sequences truncated at the N- and C-termini, relative to the query sequence, the percent identity is corrected by calculating the number of residues of the query sequence that are N- and C-terminal of the subject sequence, which are not matched/aligned with a corresponding subject residue, as a percent of the total bases of the query sequence. Whether a residue is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This final percent identity score is what is used for the purposes of the present invention. Only residues to the N- and C-termini of the subject sequence, which are not matched/aligned with the query sequence, are considered for the purposes of manually adjusting the percent identity score. That is, only query residue positions outside the farthest N- and C- terminal residues of the subject sequence.

[0106] For example, a 90 amino acid residue subject sequence is aligned with a 100 residue query sequence to determine percent identity. The deletion occurs at the N-terminus of the subject sequence and therefore, the FASTDB alignment does not show a matching/alignment of the first 10 residues at the N-terminus. The 10 unpaired residues represent 10% of the sequence (number of residues at the N- and C- termini not matched/total number of residues in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 residues were perfectly matched the final percent identity would be 90%. In another example, a 90 residue subject sequence is compared with a 100 residue query sequence. This time the deletions are internal deletions so there are no residues at the N- or C-termini of the subject sequence which are not matched/aligned with the query. In this case the percent

identity calculated by FASTDB is not manually corrected. Once again, only residue positions outside the N- and C-terminal ends of the subject sequence, as displayed in the FASTDB alignment, which are not matched/aligned with the query sequence are manually corrected for. No other manual corrections are to be made for the purposes of the present invention.

[0107] The polynucleotide variants of the invention may contain alterations in the coding regions, non-coding regions, or both. Especially preferred are polynucleotide variants containing alterations which produce silent substitutions, additions, or deletions, but do not alter the properties or activities of the encoded polypeptide. Nucleotide variants produced by silent substitutions due to the degeneracy of the genetic code are preferred. Moreover, polypeptide variants in which less than 50, less than 40, less than 30, less than 20, less than 10, or 5-50, 5-25, 5-10, 1-5, or 1-2 amino acids are substituted, deleted, or added in any combination are also preferred. Polynucleotide variants can be produced for a variety of reasons, e.g., to optimize codon expression for a particular host (change codons in the human mRNA to those preferred by a bacterial host such as *E. coli*).

[0108] Naturally occurring variants are called "allelic variants," and refer to one of several alternate forms of a gene occupying a given locus on a chromosome of an organism. (Genes II, Lewin, B., ed., John Wiley & Sons, New York (1985).) These allelic variants can vary at either the polynucleotide and/or polypeptide level and are included in the present invention. Alternatively, non-naturally occurring variants may be produced by mutagenesis techniques or by direct synthesis.

[0109] Using known methods of protein engineering and recombinant DNA technology, variants may be generated to improve or alter the characteristics of the polypeptides of the present invention. For instance, one or more amino acids can be deleted from the N-terminus or C-terminus of the polypeptides of the present invention without substantial loss of biological function. As an example, the authors of Ron et al., J. Biol. Chem. 268: 2984-2988 (1993), reported variant KGF proteins having heparin binding activity even after deleting 3, 8, or 27 amino-terminal amino acid residues. Similarly, Interferon gamma exhibited up to ten times higher activity after deleting 8-10 amino acid residues from the carboxy terminus of this protein. (Dobeli et al., J. Biotechnology 7:199-216 (1988).)

[0110] Moreover, ample evidence demonstrates that variants often retain a biological activity similar to that of the naturally occurring protein. For example, Gayle and coworkers (J. Biol. Chem. 268:22105-22111 (1993)) conducted extensive mutational analysis of human cytokine IL-1a. They used random mutagenesis to generate over 3,500 individual IL-1a mutants that averaged 2.5 amino acid changes per variant over the entire length of the molecule. Multiple mutations were examined at every possible amino acid position. The investigators found that "[m]ost of the molecule could be altered with little effect on either [binding or biological activity]." In fact, only 23 unique amino acid sequences, out of more than 3,500 nucleotide sequences examined, produced a protein that significantly differed in activity from wild-type.

[0111] Furthermore, even if deleting one or more amino acids from the N-terminus or C-terminus of a polypeptide results in modification or loss of one or more biological functions, other biological activities may still be retained. For example, the ability of a deletion variant to induce and/or to bind antibodies which recognize the secreted form will likely be retained when less than the majority of the residues of the secreted form are removed from the N-terminus or C-terminus. Whether a particular polypeptide lacking N- or C-terminal residues of a protein retains such immunogenic activities can readily be determined by routine methods described herein and otherwise known in the art.

[0112] Thus, the invention further includes polypeptide variants which show a functional activity (e.g., biological activity) of the polypeptides of the invention. Such variants include deletions, insertions, inversions, repeats, and substitutions selected according to general rules known in the art so as have little effect on activity.

[0113] The present application is directed to nucleic acid molecules at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, (e.g., encoding a polypeptide having the amino acid sequence of an N and/or C terminal deletion), irrespective of whether they encode a polypeptide having functional activity. This is because even where a particular nucleic acid molecule does not encode a polypeptide having functional activity, one of skill in the art would still know how to use the nucleic acid molecule, for instance, as a hybridization probe or a polymerase chain reaction (PCR) primer. Uses of the nucleic acid molecules of the present invention that do not encode a polypeptide having functional activity include, *inter alia*, (1) isolating a gene or allelic or splice variants thereof in a cDNA library; (2) in situ



hybridization (e.g., "FISH") to metaphase chromosomal spreads to provide precise chromosomal location of the gene, as described in Verma et al., *Human Chromosomes: A Manual of Basic Techniques*, Pergamon Press, New York (1988); (3) Northern Blot analysis for detecting mRNA expression in specific tissues (e.g., normal immune/hematopoietic or diseased immune/hematopoietic tissues); and (4) *in situ* hybridization (e.g., histochemistry) for detecting mRNA expression in specific tissues (e.g., normal immune/hematopoietic or diseased immune/hematopoietic tissues).

[0114] Preferred, however, are nucleic acid molecules having sequences at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, which do, in fact, encode a polypeptide having functional activity. By a polypeptide having "functional activity" is meant, a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein of the invention. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide of the invention for binding) to an anti-polypeptide of the invention antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide of the invention.

[0115] The functional activity of the polypeptides, and fragments, variants and derivatives of the invention, can be assayed by various methods.

[0116] For example, in one embodiment where one is assaying for the ability to bind or compete with full-length polypeptide of the present invention for binding to an anti-polypeptide of the invention antibody, various immunoassays known in the art can be used, including but not limited to, competitive and non-competitive assay systems using techniques such as radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoradiometric assays, gel diffusion precipitation reactions, immunodiffusion assays, *in situ* immunoassays (using colloidal gold, enzyme or radioisotope labels, for example), western blots, precipitation reactions, agglutination assays (e.g., gel agglutination assays, hemagglutination assays), complement fixation assays, immunofluorescence assays, protein A assays, and immunoelectrophoresis assays, etc. In one embodiment, antibody binding is detected by detecting a label on the primary antibody. In another embodiment, the primary antibody is detected by detecting binding

of a secondary antibody or reagent to the primary antibody. In a further embodiment, the secondary antibody is labeled. Many means are known in the art for detecting binding in an immunoassay and are within the scope of the present invention.

[0117] In another embodiment, where a ligand is identified, or the ability of a polypeptide fragment, variant or derivative of the invention to multimerize is being evaluated, binding can be assayed, e.g., by means well-known in the art, such as, for example, reducing and non-reducing gel chromatography, protein affinity chromatography, and affinity blotting. See generally, Phizicky et al., *Microbiol. Rev.* 59:94-123 (1995). In another embodiment, the ability of physiological correlates of a polypeptide of the present invention to bind to a substrate(s) of the polypeptide of the invention can be routinely assayed using techniques known in the art.

[0118] In addition, assays described herein (see Examples) and otherwise known in the art may routinely be applied to measure the ability of polypeptides of the present invention and fragments, variants and derivatives thereof to elicit polypeptide related biological activity (either *in vitro* or *in vivo*). Other methods will be known to the skilled artisan and are within the scope of the invention.

[0119] Of course, due to the degeneracy of the genetic code, one of ordinary skill in the art will immediately recognize that a large number of the nucleic acid molecules having a sequence at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% identical to, for example, the nucleic acid sequence of the cDNA contained in Clone ID NO:Z, a nucleic acid sequence referred to in Table 1A (e.g., SEQ ID NO:X), a nucleic acid sequence disclosed in Table 2 (e.g., the nucleic acid sequence delineated in columns 8 and 9) or fragments thereof, will encode polypeptides "having functional activity." In fact, since degenerate variants of any of these nucleotide sequences all encode the same polypeptide, in many instances, this will be clear to the skilled artisan even without performing the above described comparison assay. It will be further recognized in the art that, for such nucleic acid molecules that are not degenerate variants, a reasonable number will also encode a polypeptide having functional activity. This is because the skilled artisan is fully aware of amino acid substitutions that are either less likely or not likely to significantly effect protein function (e.g., replacing one aliphatic amino acid with a second aliphatic amino acid), as further described below.

[0120] For example, guidance concerning how to make phenotypically silent amino acid substitutions is provided in Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions," *Science* 247:1306-1310 (1990), wherein the authors indicate that there are two main strategies for studying the tolerance of an amino acid sequence to change.

[0121] The first strategy exploits the tolerance of amino acid substitutions by natural selection during the process of evolution. By comparing amino acid sequences in different species, conserved amino acids can be identified. These conserved amino acids are likely important for protein function. In contrast, the amino acid positions where substitutions have been tolerated by natural selection indicates that these positions are not critical for protein function. Thus, positions tolerating amino acid substitution could be modified while still maintaining biological activity of the protein.

[0122] The second strategy uses genetic engineering to introduce amino acid changes at specific positions of a cloned gene to identify regions critical for protein function. For example, site directed mutagenesis or alanine-scanning mutagenesis (introduction of single alanine mutations at every residue in the molecule) can be used. See Cunningham et al., *Science* 244:1081-1085 (1989). The resulting mutant molecules can then be tested for biological activity.

[0123] As the authors state, these two strategies have revealed that proteins are surprisingly tolerant of amino acid substitutions. The authors further indicate which amino acid changes are likely to be permissive at certain amino acid positions in the protein. For example, most buried (within the tertiary structure of the protein) amino acid residues require nonpolar side chains, whereas few features of surface side chains are generally conserved. Moreover, tolerated conservative amino acid substitutions involve replacement of the aliphatic or hydrophobic amino acids Ala, Val, Leu and Ile; replacement of the hydroxyl residues Ser and Thr; replacement of the acidic residues Asp and Glu; replacement of the amide residues Asn and Gln, replacement of the basic residues Lys, Arg, and His; replacement of the aromatic residues Phe, Tyr, and Trp, and replacement of the small-sized amino acids Ala, Ser, Thr, Met, and Gly. Besides conservative amino acid substitutions, variants of the present invention include (i) substitutions with one or more of the non-conserved amino acid residues, where the substituted amino acid residues may or may not be one encoded by the genetic code, or (ii)

substitutions with one or more of the amino acid residues having a substituent group, or (iii) fusion of the mature polypeptide with another compound, such as a compound to increase the stability and/or solubility of the polypeptide (for example, polyethylene glycol), or (iv) fusion of the polypeptide with additional amino acids, such as, for example, an IgG Fc fusion region peptide, serum albumin (preferably human serum albumin) or a fragment or variant thereof, or leader or secretory sequence, or a sequence facilitating purification. Such variant polypeptides are deemed to be within the scope of those skilled in the art from the teachings herein.

[0124] For example, polypeptide variants containing amino acid substitutions of charged amino acids with other charged or neutral amino acids may produce proteins with improved characteristics, such as less aggregation. Aggregation of pharmaceutical formulations both reduces activity and increases clearance due to the aggregate's immunogenic activity. See Pinckard et al., Clin. Exp. Immunol. 2:331-340 (1967); Robbins et al., Diabetes 36: 838-845 (1987); Cleland et al., Crit. Rev. Therapeutic Drug Carrier Systems 10:307-377 (1993).

[0125] A further embodiment of the invention relates to polypeptides which comprise the amino acid sequence of a polypeptide having an amino acid sequence which contains at least one amino acid substitution, but not more than 50 amino acid substitutions, even more preferably, not more than 40 amino acid substitutions, still more preferably, not more than 30 amino acid substitutions, and still even more preferably, not more than 20 amino acid substitutions from a polypeptide sequence disclosed herein. Of course it is highly preferable for a polypeptide to have an amino acid sequence which comprises the amino acid sequence of a polypeptide of SEQ ID NO:Y, an amino acid sequence encoded by SEQ ID NO:X, an amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, an amino acid sequence encoded by the complement of SEQ ID NO:X, and/or the amino acid sequence encoded by cDNA contained in Clone ID NO:Z which contains, in order of ever-increasing preference, at least one, but not more than 10, 9, 8, 7, 6, 5, 4, 3, 2 or 1 amino acid substitutions.

[0126] In specific embodiments, the polypeptides of the invention comprise, or alternatively, consist of, fragments or variants of a reference amino acid sequence selected from: (a) the amino acid sequence of SEQ ID NO:Y or fragments thereof (e.g., the mature form and/or other fragments described herein); (b) the amino acid sequence encoded by

SEQ ID NO:X or fragments thereof; (c) the amino acid sequence encoded by the complement of SEQ ID NO:X or fragments thereof; (d) the amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or fragments thereof; and (e) the amino acid sequence encoded by cDNA contained in Clone ID NO:Z or fragments thereof; wherein the fragments or variants have 1-5, 5-10, 5-25, 5-50, 10-50 or 50-150, amino acid residue additions, substitutions, and/or deletions when compared to the reference amino acid sequence. In preferred embodiments, the amino acid substitutions are conservative. Polynucleotides encoding these polypeptides are also encompassed by the invention.

#### *Polynucleotide and Polypeptide Fragments*

[0127] The present invention is also directed to polynucleotide fragments of the polynucleotides (nucleic acids) of the invention. In the present invention, a "polynucleotide fragment" refers to a polynucleotide having a nucleic acid sequence which, for example: is a portion of the cDNA contained in Clone ID NO:Z or the complementary strand thereto; is a portion of the polynucleotide sequence encoding the polypeptide encoded by the cDNA contained in Clone ID NO:Z or the complementary strand thereto; is a portion of a polynucleotide sequence encoding the amino acid sequence encoded by the region of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto; is a portion of the polynucleotide sequence of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto; is a portion of the polynucleotide sequence in SEQ ID NO:X or the complementary strand thereto; is a polynucleotide sequence encoding a portion of the polypeptide of SEQ ID NO:Y; is a polynucleotide sequence encoding a portion of a polypeptide encoded by SEQ ID NO:X; is a polynucleotide sequence encoding a portion of a polypeptide encoded by the complement of the polynucleotide sequence in SEQ ID NO:X; is a portion of a polynucleotide sequence encoding the amino acid sequence encoded by the region of SEQ ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto; or is a portion of the polynucleotide sequence of SEQ ID NO:B as defined in column 6 of Table 1B or the complementary strand thereto.

[0128] The polynucleotide fragments of the invention are preferably at least about 15 nt, and more preferably at least about 20 nt, still more preferably at least about 30 nt, and

even more preferably, at least about 40 nt, at least about 50 nt, at least about 75 nt, or at least about 150 nt in length. A fragment "at least 20 nt in length," for example, is intended to include 20 or more contiguous bases from the cDNA sequence contained in Clone ID NO:Z, or the nucleotide sequence shown in SEQ ID NO:X or the complementary strand thereto. In this context "about" includes the particularly recited value or a value larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. These nucleotide fragments have uses that include, but are not limited to, as diagnostic probes and primers as discussed herein. Of course, larger fragments (e.g., at least 160, 170, 180, 190, 200, 250, 500, 600, 1000, or 2000 nucleotides in length) are also encompassed by the invention.

[0129] Moreover, representative examples of polynucleotide fragments of the invention, comprise, or alternatively consist of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 651-700, 701-750, 751-800, 800-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, 3551-3600, 3601-3650, 3651-3700, 3701-3750, 3751-3800, 3801-3850, 3851-3900, 3901-3950, 3951-4000, 4001-4050, 4051-4100, 4101-4150, 4151-4200, 4201-4250, 4251-4300, 4301-4350, 4351-4400, 4401-4450, 4451-4500, 4501-4550, 4551-4600, 4601-4650, 4651-4700, 4701-4750, 4751-4800, 4801-4850, 4851-4900, 4901-4950, 4951-5000, 5001-5050, 5051-5100, 5101-5150, 5151-5200, 5201-5250, 5251-5300, 5301-5350, 5351-5400, 5401-5450, 5451-5500, 5501-5550, 5551-5600, 5601-5650, 5651-5700, 5701-5750, 5751-5800, 5801-5850, 5851-5900, 5901-5950, 5951-6000, 6001-6050, 6051-6100, 6101-6150, 6151-6200, 6201-6250, 6251-6300, 6301-6350, 6351-6400, 6401-6450, 6451-6500, 6501-6550, 6551-6600, 6601-6650, 6651-6700, 6701-6750, 6751-6800, 6801-6850, 6851-6900, 6901-6950, 6951-7000, 7001-7050, 7051-7100, 7101-7150, 7151-7200, 7201-7250, 7251-7300 or 7301 to the end of SEQ ID NO:X, or the complementary strand thereto. In this context "about" includes

the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity). More preferably, these polynucleotides can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

**[0130]** Further representative examples of polynucleotide fragments of the invention, comprise, or alternatively consist of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 651-700, 701-750, 751-800, 800-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, 3551-3600, 3601-3650, 3651-3700, 3701-3750, 3751-3800, 3801-3850, 3851-3900, 3901-3950, 3951-4000, 4001-4050, 4051-4100, 4101-4150, 4151-4200, 4201-4250, 4251-4300, 4301-4350, 4351-4400, 4401-4450, 4451-4500, 4501-4550, 4551-4600, 4601-4650, 4651-4700, 4701-4750, 4751-4800, 4801-4850, 4851-4900, 4901-4950, 4951-5000, 5001-5050, 5051-5100, 5101-5150, 5151-5200, 5201-5250, 5251-5300, 5301-5350, 5351-5400, 5401-5450, 5451-5500, 5501-5550, 5551-5600, 5601-5650, 5651-5700, 5701-5750, 5751-5800, 5801-5850, 5851-5900, 5901-5950, 5951-6000, 6001-6050, 6051-6100, 6101-6150, 6151-6200, 6201-6250, 6251-6300, 6301-6350, 6351-6400, 6401-6450, 6451-6500, 6501-6550, 6551-6600, 6601-6650, 6651-6700, 6701-6750, 6751-6800, 6801-6850, 6851-6900, 6901-6950, 6951-7000, 7001-7050, 7051-7100, 7101-7150, 7151-7200, 7201-7250, 7251-7300 or 7301 to the end of the cDNA sequence contained in Clone ID NO:Z, or the complementary strand thereto. In this context "about" includes the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity).

More preferably, these polynucleotides can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[0131] Moreover, representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a nucleic acid sequence comprising one, two, three, four, five, six, seven, eight, nine, ten, or more of the above described polynucleotide fragments of the invention in combination with a polynucleotide sequence delineated in Table 1B column 6. Additional, representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a nucleic acid sequence comprising one, two, three, four, five, six, seven, eight, nine, ten, or more of the above described polynucleotide fragments of the invention in combination with a polynucleotide sequence that is the complementary strand of a sequence delineated in column 6 of Table 1B. In further embodiments, the above-described polynucleotide fragments of the invention comprise, or alternatively consist of, sequences delineated in Table 1B, column 6, and have a nucleic acid sequence which is different from that of the BAC fragment having the sequence disclosed in SEQ ID NO:B (see Table 1B, column 5). In additional embodiments, the above-described polynucleotide fragments of the invention comprise, or alternatively consist of, sequences delineated in Table 1B, column 6, and have a nucleic acid sequence which is different from that published for the BAC clone identified as BAC ID NO:A (see Table 1B, column 4). In additional embodiments, the above-described polynucleotides of the invention comprise, or alternatively consist of, sequences delineated Table 1B, column 6, and have a nucleic acid sequence which is different from that contained in the BAC clone identified as BAC ID NO:A (see Table 1B, column 4). Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides and polypeptides are also encompassed by the invention.

[0132] In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more fragments of the sequences delineated in column 6 of Table 1B, and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1B, column 2) or fragments or



variants thereof. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[0133] In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more fragments of the sequences delineated in column 6 of Table 1B which correspond to the same Clone ID NO:Z (see Table 1B, column 1), and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1A or 1B) or fragments or variants thereof. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[0134] In further specific embodiments, polynucleotides of the invention comprise, or alternatively consist of, one, two, three, four, five, six, seven, eight, nine, ten, or more fragments of the sequences delineated in the same row of column 6 of Table 1B, and the polynucleotide sequence of SEQ ID NO:X (e.g., as defined in Table 1A or 1B) or fragments or variants thereof. Polypeptides encoded by these polynucleotides, other polynucleotides that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention.

[0135] In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of the sequence of SEQ ID NO:X are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids that encode these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[0136] In additional specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of

a fragment or variant of the sequence of SEQ ID NO:X (e.g., as described herein) are directly contiguous Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[0137] In further specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of a fragment or variant of the sequence of SEQ ID NO:X and the 5' 10 polynucleotides of the sequence of one of the sequences delineated in column 6 of Table 1B are directly contiguous. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[0138] In specific embodiments, polynucleotides of the invention comprise, or alternatively consist of a polynucleotide sequence in which the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B and the 5' 10 polynucleotides of another sequence in column 6 are directly contiguous. In preferred embodiments, the 3' 10 polynucleotides of one of the sequences delineated in column 6 of Table 1B is directly contiguous with the 5' 10 polynucleotides of the next sequential exon delineated in Table 1B, column 6. Nucleic acids which hybridize to the complement of these 20 contiguous polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention. Polypeptides encoded by these polynucleotides and/or nucleic acids, other polynucleotides and/or nucleic acids encoding these polypeptides, and antibodies that bind these polypeptides are also

encompassed by the invention. Additionally, fragments and variants of the above-described polynucleotides, nucleic acids, and polypeptides are also encompassed by the invention.

[0139] In the present invention, a "polypeptide fragment" refers to an amino acid sequence which is a portion of that contained in SEQ ID NO:Y, a portion of an amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, a portion of an amino acid sequence encoded by the polynucleotide sequence of SEQ ID NO:X, a portion of an amino acid sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, and/or a portion of an amino acid sequence encoded by the cDNA contained in Clone ID NO:Z. Protein (polypeptide) fragments may be "free-standing," or comprised within a larger polypeptide of which the fragment forms a part or region, most preferably as a single continuous region. Representative examples of polypeptide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 102-120, 121-140, 141-160, 161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, 1181-1200, 1201-1220, 1221-1240, 1241-1260, 1261-1280, 1281-1300, 1301-1320, 1321-1340, 1341-1360, 1361-1380, 1381-1400, 1401-1420, 1421-1440, or 1441 to the end of the coding region. In a preferred embodiment, polypeptide fragments of the invention include, for example, fragments comprising, or alternatively consisting of, from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 102-120, 121-140, 141-160, 161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, 1181-1200, 1201-1220, 1221-1240, 1241-1260, 1261-1280, 1281-1300, 1301-1320, 1321-1340, 1341-1360, 1361-1380, 1381-

1400, 1401-1420, 1421-1440, or 1441 to the end of the coding region of SEQ ID NO:Y. Moreover, polypeptide fragments of the invention may be at least about 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, or 150 amino acids in length. In this context "about" includes the particularly recited ranges or values, or ranges or values larger or smaller by several (5, 4, 3, 2, or 1) amino acids, at either extreme or at both extremes. Polynucleotides encoding these polypeptide fragments are also encompassed by the invention.

[0140] Even if deletion of one or more amino acids from the N-terminus of a protein results in modification or loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example, the ability of shortened muteins to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptides generally will be retained when less than the majority of the residues of the complete or mature polypeptide are removed from the N-terminus. Whether a particular polypeptide lacking N-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted N-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

[0141] Accordingly, polypeptide fragments include the secreted protein as well as the mature form. Further preferred polypeptide fragments include the secreted protein or the mature form having a continuous series of deleted residues from the amino or the carboxy terminus, or both. For example, any number of amino acids, ranging from 1-60, can be deleted from the amino terminus of either the secreted polypeptide or the mature form. Similarly, any number of amino acids, ranging from 1-30, can be deleted from the carboxy terminus of the secreted protein or mature form. Furthermore, any combination of the above amino and carboxy terminus deletions is preferred. Similarly, polynucleotides encoding these polypeptide fragments are also preferred.

[0142] The present invention further provides polypeptides having one or more residues deleted from the amino terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the

polynucleotide sequence contained in SEQ ID NO:X or the complement thereof, a polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, a polypeptide encoded by the portion of SEQ ID NO:B as defined in column 6 of Table 1B, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z). In particular, N-terminal deletions may be described by the general formula m-q, where q is a whole integer representing the total number of amino acid residues in a polypeptide of the invention (e.g., the polypeptide disclosed in SEQ ID NO:Y, or the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2), and m is defined as any integer ranging from 2 to q-6. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0143] The present invention further provides polypeptides having one or more residues from the carboxy terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X, a polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z). In particular, C-terminal deletions may be described by the general formula 1-n, where n is any whole integer ranging from 6 to q-1, and where n corresponds to the position of amino acid residue in a polypeptide of the invention. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0144] In addition, any of the above described N- or C-terminal deletions can be combined to produce a N- and C-terminal deleted polypeptide. The invention also provides polypeptides having one or more amino acids deleted from both the amino and the carboxyl termini, which may be described generally as having residues m-n of a polypeptide encoded by SEQ ID NO:X (e.g., including, but not limited to, the preferred polypeptide disclosed as SEQ ID NO:Y and the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2), the cDNA contained in Clone ID NO:Z, and/or the complement thereof, where n and m are integers as described above. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0145] Also as mentioned above, even if deletion of one or more amino acids from the C-terminus of a protein results in modification or loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example the ability of the shortened

mutagenesis to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptide generally will be retained when less than the majority of the residues of the complete or mature polypeptide are removed from the C-terminus. Whether a particular polypeptide lacking C-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutagen with a large number of deleted C-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

[0146] The present application is also directed to proteins containing polypeptides at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a polypeptide sequence set forth herein. In preferred embodiments, the application is directed to proteins containing polypeptides at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to polypeptides having the amino acid sequence of the specific N- and C-terminal deletions. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0147] Any polypeptide sequence encoded by, for example, the polynucleotide sequences set forth as SEQ ID NO:X or the complement thereof, (presented, for example, in Tables 1A and 2), the cDNA contained in Clone ID NO:Z, or the polynucleotide sequence as defined in column 6 of Table 1B, may be analyzed to determine certain preferred regions of the polypeptide. For example, the amino acid sequence of a polypeptide encoded by a polynucleotide sequence of SEQ ID NO:X (e.g., the polypeptide of SEQ ID NO:Y and the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2) or the cDNA contained in Clone ID NO:Z may be analyzed using the default parameters of the DNASTAR computer algorithm (DNASTAR, Inc., 1228 S. Park St., Madison, WI 53715 USA; <http://www.dnastar.com/>).

[0148] Polypeptide regions that may be routinely obtained using the DNASTAR computer algorithm include, but are not limited to, Garnier-Robson alpha-regions, beta-regions, turn-regions, and coil-regions; Chou-Fasman alpha-regions, beta-regions, and turn-regions; Kyte-Doolittle hydrophilic regions and hydrophobic regions; Eisenberg alpha- and beta-amphipathic regions; Karplus-Schulz flexible regions; Emini surface-forming regions; and Jameson-Wolf regions of high antigenic index. Among

highly preferred polynucleotides of the invention in this regard are those that encode polypeptides comprising regions that combine several structural features, such as several (e.g., 1, 2, 3 or 4) of the features set out above.

[0149] Additionally, Kyte-Doolittle hydrophilic regions and hydrophobic regions, Emini surface-forming regions, and Jameson-Wolf regions of high antigenic index (i.e., containing four or more contiguous amino acids having an antigenic index of greater than or equal to 1.5, as identified using the default parameters of the Jameson-Wolf program) can routinely be used to determine polypeptide regions that exhibit a high degree of potential for antigenicity. Regions of high antigenicity are determined from data by DNASTAR analysis by choosing values which represent regions of the polypeptide which are likely to be exposed on the surface of the polypeptide in an environment in which antigen recognition may occur in the process of initiation of an immune response.

[0150] Preferred polypeptide fragments of the invention are fragments comprising, or alternatively, consisting of, an amino acid sequence that displays a functional activity (e.g. biological activity) of the polypeptide sequence of which the amino acid sequence is a fragment. By a polypeptide displaying a "functional activity" is meant a polypeptide capable of one or more known functional activities associated with a full-length protein, such as, for example, biological activity, antigenicity, immunogenicity, and/or multimerization, as described herein.

[0151] Other preferred polypeptide fragments are biologically active fragments. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

[0152] In preferred embodiments, polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the antigenic fragments of the polypeptide of SEQ ID NO:Y, or portions thereof. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0153] The present invention encompasses polypeptides comprising, or alternatively consisting of, an epitope of: the polypeptide sequence shown in SEQ ID NO:Y; a polypeptide sequence encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide sequence encoded by the portion of SEQ ID NO:X as defined in columns 8

and 9 of Table 2; the polypeptide sequence encoded by the portion of SEQ ID NO:B as defined in column 6 of Table 1B or the complement thereto; the polypeptide sequence encoded by the cDNA contained in Clone ID NO:Z; or the polypeptide sequence encoded by a polynucleotide that hybridizes to the sequence of SEQ ID NO:X, the complement of the sequence of SEQ ID NO:X, the complement of a portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, or the cDNA sequence contained in Clone ID NO:Z under stringent hybridization conditions or alternatively, under lower stringency hybridization as defined *supra*. The present invention further encompasses polynucleotide sequences encoding an epitope of a polypeptide sequence of the invention (such as, for example, the sequence disclosed in SEQ ID NO:X, or a fragment thereof), polynucleotide sequences of the complementary strand of a polynucleotide sequence encoding an epitope of the invention, and polynucleotide sequences which hybridize to the complementary strand under stringent hybridization conditions or alternatively, under lower stringency hybridization conditions defined *supra*.

[0154] The term "epitopes," as used herein, refers to portions of a polypeptide having antigenic or immunogenic activity in an animal, preferably a mammal, and most preferably in a human. In a preferred embodiment, the present invention encompasses a polypeptide comprising an epitope, as well as the polynucleotide encoding this polypeptide. An "immunogenic epitope," as used herein, is defined as a portion of a protein that elicits an antibody response in an animal, as determined by any method known in the art, for example, by the methods for generating antibodies described *infra*. (See, for example, Geysen et al., Proc. Natl. Acad. Sci. USA 81:3998-4002 (1983)). The term "antigenic epitope," as used herein, is defined as a portion of a protein to which an antibody can immunospecifically bind its antigen as determined by any method well known in the art, for example, by the immunoassays described herein. Immunospecific binding excludes non-specific binding but does not necessarily exclude cross-reactivity with other antigens. Antigenic epitopes need not necessarily be immunogenic.

[0155] Fragments which function as epitopes may be produced by any conventional means. (See, e.g., Houghten, R. A., Proc. Natl. Acad. Sci. USA 82:5131-5135 (1985) further described in U.S. Patent No. 4,631,211.)

[0156] In the present invention, antigenic epitopes preferably contain a sequence of at least 4, at least 5, at least 6, at least 7, more preferably at least 8, at least 9, at least 10, at



least 11, at least 12, at least 13, at least 14, at least 15, at least 20, at least 25, at least 30, at least 40, at least 50, and, most preferably, between about 15 to about 30 amino acids. Preferred polypeptides comprising immunogenic or antigenic epitopes are at least 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or 100 amino acid residues in length. Additional non-exclusive preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as portions thereof. Antigenic epitopes are useful, for example, to raise antibodies, including monoclonal antibodies, that specifically bind the epitope. Preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these antigenic epitopes. Antigenic epitopes can be used as the target molecules in immunoassays. (See, for instance, Wilson et al., *Cell* 37:767-778 (1984); Sutcliffe et al., *Science* 219:660-666 (1983)).

[0157] Non-limiting examples of epitopes of polypeptides that can be used to generate antibodies of the invention include a polypeptide comprising, or alternatively consisting of, at least one, two, three, four, five, six or more of the portion(s) of SEQ ID NO:Y specified in column 6 of Table 1A. These polypeptide fragments have been determined to bear antigenic epitopes of the proteins of the invention by the analysis of the Jameson-Wolf antigenic index which is included in the DNASTar suite of computer programs. By "comprise" it is intended that a polypeptide contains at least one, two, three, four, five, six or more of the portion(s) of SEQ ID NO:Y shown in column 6 of Table 1A, but it may contain additional flanking residues on either the amino or carboxyl termini of the recited portion. Such additional flanking sequences are preferably sequences naturally found adjacent to the portion; i.e., contiguous sequence shown in SEQ ID NO:Y. The flanking sequence may, however, be sequences from a heterologous polypeptide, such as from another protein described herein or from a heterologous polypeptide not described herein. In particular embodiments, epitope portions of a polypeptide of the invention comprise one, two, three, or more of the portions of SEQ ID NO:Y shown in column 6 of Table 1A. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0158] Similarly, immunogenic epitopes can be used, for example, to induce antibodies according to methods well known in the art. See, for instance, Sutcliffe et al., *supra*; Wilson et al., *supra*; Chow et al., *Proc. Natl. Acad. Sci. USA* 82:910-914; and Bittle et al., *J. Gen. Virol.* 66:2347-2354 (1985). Preferred immunogenic epitopes

include the immunogenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these immunogenic epitopes. The polypeptides comprising one or more immunogenic epitopes may be presented for eliciting an antibody response together with a carrier protein, such as an albumin, to an animal system (such as rabbit or mouse), or, if the polypeptide is of sufficient length (at least about 25 amino acids), the polypeptide may be presented without a carrier. However, immunogenic epitopes comprising as few as 8 to 10 amino acids have been shown to be sufficient to raise antibodies capable of binding to, at the very least, linear epitopes in a denatured polypeptide (e.g., in Western blotting).

[0159] Epitope-bearing polypeptides of the present invention may be used to induce antibodies according to methods well known in the art including, but not limited to, *in vivo* immunization, *in vitro* immunization, and phage display methods. See, e.g., Sutcliffe et al., *supra*; Wilson et al., *supra*, and Bittle et al., J. Gen. Virol., 66:2347-2354 (1985). If *in vivo* immunization is used, animals may be immunized with free peptide; however, anti-peptide antibody titer may be boosted by coupling the peptide to a macromolecular carrier, such as keyhole limpet hemacyanin (KLH) or tetanus toxoid. For instance, peptides containing cysteine residues may be coupled to a carrier using a linker such as maleimidobenzoyl- N-hydroxysuccinimide ester (MBS), while other peptides may be coupled to carriers using a more general linking agent such as glutaraldehyde. Animals such as rabbits, rats and mice are immunized with either free or carrier- coupled peptides, for instance, by intraperitoneal and/or intradermal injection of emulsions containing about 100 µg of peptide or carrier protein and Freund's adjuvant or any other adjuvant known for stimulating an immune response. Several booster injections may be needed, for instance, at intervals of about two weeks, to provide a useful titer of anti-peptide antibody which can be detected, for example, by ELISA assay using free peptide adsorbed to a solid surface. The titer of anti-peptide antibodies in serum from an immunized animal may be increased by selection of anti-peptide antibodies, for instance, by adsorption to the peptide on a solid support and elution of the selected antibodies according to methods well known in the art.

[0160] As one of skill in the art will appreciate, and as discussed above, the polypeptides of the present invention (e.g., those comprising an immunogenic or antigenic epitope) can be fused to heterologous polypeptide sequences. For example, polypeptides of the present

invention (including fragments or variants thereof), may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM), or portions thereof (CH1, CH2, CH3, or any combination thereof and portions thereof, resulting in chimeric polypeptides. By way of another non-limiting example, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) may be fused with albumin (including but not limited to recombinant human serum albumin or fragments or variants thereof (see, e.g., U.S. Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)). In a preferred embodiment, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) are fused with the mature form of human serum albumin (i.e., amino acids 1 – 585 of human serum albumin as shown in Figures 1 and 2 of EP Patent 0 322 094) which is herein incorporated by reference in its entirety. In another preferred embodiment, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) are fused with polypeptide fragments comprising, or alternatively consisting of, amino acid residues 1-z of human serum albumin, where z is an integer from 369 to 419, as described in U.S. Patent 5,766,883 herein incorporated by reference in its entirety. Polypeptides and/or antibodies of the present invention (including fragments or variants thereof) may be fused to either the N- or C-terminal end of the heterologous protein (e.g., immunoglobulin Fc polypeptide or human serum albumin polypeptide). Polynucleotides encoding fusion proteins of the invention are also encompassed by the invention.

[0161] Such fusion proteins as those described above may facilitate purification and may increase half-life *in vivo*. This has been shown for chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light chains of mammalian immunoglobulins. See, e.g., EP 394,827; Traunecker et al., *Nature*, 331:84-86 (1988). Enhanced delivery of an antigen across the epithelial barrier to the immune system has been demonstrated for antigens (e.g., insulin) conjugated to an FcRn binding partner such as IgG or Fc fragments (see, e.g., PCT Publications WO 96/22024 and WO 99/04813). IgG Fusion proteins that have a disulfide-linked dimeric structure due to the IgG portion disulfide bonds have also been found to be more efficient in binding and neutralizing other molecules than monomeric polypeptides or fragments thereof alone. See, e.g., Fountoulakis et al., *J. Biochem.*,

270:3958-3964 (1995). Nucleic acids encoding the above epitopes can also be recombined with a gene of interest as an epitope tag (e.g., the hemagglutinin (HA) tag or flag tag) to aid in detection and purification of the expressed polypeptide. For example, a system described by Janknecht et al. allows for the ready purification of non-denatured fusion proteins expressed in human cell lines (Janknecht et al., 1991, Proc. Natl. Acad. Sci. USA 88:8972- 897). In this system, the gene of interest is subcloned into a vaccinia recombination plasmid such that the open reading frame of the gene is translationally fused to an amino-terminal tag consisting of six histidine residues. The tag serves as a matrix binding domain for the fusion protein. Extracts from cells infected with the recombinant vaccinia virus are loaded onto Ni<sup>2+</sup> nitriloacetic acid-agarose column and histidine-tagged proteins can be selectively eluted with imidazole-containing buffers.

#### *Fusion Proteins*

[0162] Any polypeptide of the present invention can be used to generate fusion proteins. For example, the polypeptide of the present invention, when fused to a second protein, can be used as an antigenic tag. Antibodies raised against the polypeptide of the present invention can be used to indirectly detect the second protein by binding to the polypeptide. Moreover, because secreted proteins target cellular locations based on trafficking signals, polypeptides of the present invention which are shown to be secreted can be used as targeting molecules once fused to other proteins.

[0163] Examples of domains that can be fused to polypeptides of the present invention include not only heterologous signal sequences, but also other heterologous functional regions. The fusion does not necessarily need to be direct, but may occur through linker sequences.

[0164] In certain preferred embodiments, proteins of the invention are fusion proteins comprising an amino acid sequence that is an N and/or C- terminal deletion of a polypeptide of the invention. In preferred embodiments, the invention is directed to a fusion protein comprising an amino acid sequence that is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a polypeptide sequence of the invention. Polynucleotides encoding these proteins are also encompassed by the invention.

[0165] Moreover, fusion proteins may also be engineered to improve characteristics of the polypeptide of the present invention. For instance, a region of additional amino acids,

particularly charged amino acids, may be added to the N-terminus of the polypeptide to improve stability and persistence during purification from the host cell or subsequent handling and storage. Also, peptide moieties may be added to the polypeptide to facilitate purification. Such regions may be removed prior to final preparation of the polypeptide. The addition of peptide moieties to facilitate handling of polypeptides are familiar and routine techniques in the art.

[0166] As one of skill in the art will appreciate that, as discussed above, polypeptides of the present invention, and epitope-bearing fragments thereof, can be combined with heterologous polypeptide sequences. For example, the polypeptides of the present invention may be fused with heterologous polypeptide sequences, for example, the polypeptides of the present invention may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM) or portions thereof (CH1, CH2, CH3, and any combination thereof, including both entire domains and portions thereof), or albumin (including, but not limited to, native or recombinant human albumin or fragments or variants thereof (see, e.g., U.S. Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)), resulting in chimeric polypeptides. For example, EP-A-O 464 533 (Canadian counterpart 2045869) discloses fusion proteins comprising various portions of constant region of immunoglobulin molecules together with another human protein or part thereof. In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis, and thus can result in, for example, improved pharmacokinetic properties (EP-A 0232 262). Alternatively, deleting the Fc part after the fusion protein has been expressed, detected, and purified, would be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to identify antagonists of hIL-5. See, D. Bennett et al., *J. Molecular Recognition* 8:52-58 (1995); K. Johanson et al., *J. Biol. Chem.* 270:9459-9471 (1995).

[0167] Moreover, the polypeptides of the present invention can be fused to marker sequences, such as a polypeptide which facilitates purification of the fused polypeptide. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth,

CA, 91311), among others, many of which are commercially available. As described in Gentz et al., Proc. Natl. Acad. Sci. USA 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Another peptide tag useful for purification, the "HA" tag, corresponds to an epitope derived from the influenza hemagglutinin protein (Wilson et al., Cell 37:767 (1984).)

[0168] Additional fusion proteins of the invention may be generated through the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling (collectively referred to as "DNA shuffling"), briefly described below, and further described herein. DNA shuffling may be employed to modulate the activities of polypeptides of the invention, such methods can be used to generate polypeptides with altered activity, as well as agonists and antagonists of the polypeptides. See, generally, U.S. Patent Nos. 5,605,793; 5,811,238; 5,830,721; 5,834,252; and 5,837,458, and Patten et al., Curr. Opinion Biotechnol. 8:724-33 (1997); Harayama, Trends Biotechnol. 16(2):76-82 (1998); Hansson et al., J. Mol. Biol. 287:265-76 (1999); and Lorenzo and Blasco, Biotechniques 24(2):308-13 (1998); each of these patents and publications are hereby incorporated by reference in its entirety). In a preferred embodiment, one or more components, motifs, sections, parts, domains, fragments, etc., of a polynucleotide encoding a polypeptide of the invention may be recombined with one or more components, motifs, sections, parts, domains, fragments, etc., of one or more heterologous molecules encoding a heterologous polypeptide.

[0169] Thus, any of these above fusions can be engineered using the polynucleotides or the polypeptides of the present invention.

#### **Recombinant and Synthetic Production of Polypeptides of the Invention**

[0170] The present invention also relates to vectors containing the polynucleotide of the present invention, host cells, and the production of polypeptides by synthetic and recombinant techniques. The vector may be, for example, a phage, plasmid, viral, or retroviral vector. Retroviral vectors may be replication competent or replication defective. In the latter case, viral propagation generally will occur only in complementing host cells.

[0171] The polynucleotides of the invention may be joined to a vector containing a selectable marker for propagation in a host. Generally, a plasmid vector is introduced in a precipitate, such as a calcium phosphate precipitate, or in a complex with a charged lipid.

If the vector is a virus, it may be packaged *in vitro* using an appropriate packaging cell line and then transduced into host cells.

[0172] The polynucleotide insert should be operatively linked to an appropriate promoter, such as the phage lambda PL promoter, the *E. coli lac*, *trp*, *phoA* and *tac* promoters, the SV40 early and late promoters and promoters of retroviral LTRs, to name a few. Other suitable promoters will be known to the skilled artisan. The expression constructs will further contain sites for transcription initiation, termination, and, in the transcribed region, a ribosome binding site for translation. The coding portion of the transcripts expressed by the constructs will preferably include a translation initiating codon at the beginning and a termination codon (UAA, UGA or UAG) appropriately positioned at the end of the polypeptide to be translated.

[0173] As indicated, the expression vectors will preferably include at least one selectable marker. Such markers include dihydrofolate reductase, G418 or neomycin resistance, glutamine synthase, for eukaryotic cell culture and tetracycline, kanamycin or ampicillin resistance genes for culturing in *E. coli* and other bacteria. Representative examples of appropriate hosts include, but are not limited to, bacterial cells, such as *E. coli*, *Streptomyces* and *Salmonella typhimurium* cells; fungal cells, such as yeast cells (e.g., *Saccharomyces cerevisiae* or *Pichia pastoris* (ATCC Accession No. 201178)); insect cells such as *Drosophila* S2 and *Spodoptera Sf9* cells; animal cells such as CHO, COS, 293, NSO and Bowes melanoma cells; and plant cells. Appropriate culture mediums and conditions for the above-described host cells are known in the art.

[0174] Among vectors preferred for use in bacteria include pQE70, pQE60 and pQE-9, available from QIAGEN, Inc.; pBluescript vectors, Phagescript vectors, pNH8A, pNH16a, pNH18A, pNH46A, available from Stratagene Cloning Systems, Inc.; and ptrc99a, pKK223-3, pKK233-3, pDR540, pRIT5 available from Pharmacia Biotech, Inc. Among preferred eukaryotic vectors are pWLNEO, pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; and pSVK3, pBPV, pMSG and pSVL available from Pharmacia. Preferred expression vectors for use in yeast systems include, but are not limited to pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalph, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, pPIC9K, and PAO815 (all available from Invitrogen, Carlsbad, CA). Other suitable vectors will be readily apparent to the skilled artisan.

[0175] Vectors which use glutamine synthase (GS) or DHFR as the selectable markers can be amplified in the presence of the drugs methionine sulfoximine or methotrexate, respectively. An advantage of glutamine synthase based vectors are the availability of cell lines (e.g., the murine myeloma cell line, NS0) which are glutamine synthase negative. Glutamine synthase expression systems can also function in glutamine synthase expressing cells (e.g., Chinese Hamster Ovary (CHO) cells) by providing additional inhibitor to prevent the functioning of the endogenous gene. A glutamine synthase expression system and components thereof are detailed in PCT publications: WO87/04462; WO86/05807; WO89/01036; WO89/10404; and WO91/06657 which are hereby incorporated in their entireties by reference herein. Additionally, glutamine synthase expression vectors can be obtained from Lonza Biologics, Inc. (Portsmouth, NH). Expression and production of monoclonal antibodies using a GS expression system in murine myeloma cells is described in Bebbington et al., *Bio/technology* 10:169(1992) and in Biblia and Robinson *Biotechnol. Prog.* 11:1 (1995) which are herein incorporated by reference.

[0176] The present invention also relates to host cells containing the above-described vector constructs described herein, and additionally encompasses host cells containing nucleotide sequences of the invention that are operably associated with one or more heterologous control regions (e.g., promoter and/or enhancer) using techniques known of in the art. The host cell can be a higher eukaryotic cell, such as a mammalian cell (e.g., a human derived cell), or a lower eukaryotic cell, such as a yeast cell, or the host cell can be a prokaryotic cell, such as a bacterial cell. A host strain may be chosen which modulates the expression of the inserted gene sequences, or modifies and processes the gene product in the specific fashion desired. Expression from certain promoters can be elevated in the presence of certain inducers; thus expression of the genetically engineered polypeptide may be controlled. Furthermore, different host cells have characteristics and specific mechanisms for the translational and post-translational processing and modification (e.g., phosphorylation, cleavage) of proteins. Appropriate cell lines can be chosen to ensure the desired modifications and processing of the foreign protein expressed.

[0177] Introduction of the nucleic acids and nucleic acid constructs of the invention into the host cell can be effected by calcium phosphate transfection, DEAE-dextran mediated transfection, cationic lipid-mediated transfection, electroporation, transduction,



infection, or other methods. Such methods are described in many standard laboratory manuals, such as Davis et al., Basic Methods In Molecular Biology (1986). It is specifically contemplated that the polypeptides of the present invention may in fact be expressed by a host cell lacking a recombinant vector.

[0178] In addition to encompassing host cells containing the vector constructs discussed herein, the invention also encompasses primary, secondary, and immortalized host cells of vertebrate origin, particularly mammalian origin, that have been engineered to delete or replace endogenous genetic material (e.g., immune/hematopoietic antigen coding sequence), and/or to include genetic material (e.g., heterologous polynucleotide sequences) that is operably associated with immune/hematopoietic associated polynucleotides of the invention, and which activates, alters, and/or amplifies endogenous immune/hematopoietic associated polynucleotides. For example, techniques known in the art may be used to operably associate heterologous control regions (e.g., promoter and/or enhancer) and endogenous immune/hematopoietic associated polynucleotide sequences via homologous recombination (see, e.g., U.S. Patent Number 5,641,670, issued June 24, 1997; International Publication Number WO 96/29411; International Publication Number WO 94/12650; Koller et al., Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); and Zijlstra et al., Nature 342:435-438 (1989), the disclosures of each of which are incorporated by reference in their entireties).

[0179] Polypeptides of the present invention can also be recovered from: products purified from natural sources, including bodily fluids, tissues and cells, whether directly isolated or cultured; products of chemical synthetic procedures; and products produced by recombinant techniques from a prokaryotic or eukaryotic host, including, for example, bacterial, yeast, higher plant, insect, and mammalian cells. Depending upon the host employed in a recombinant production procedure, the polypeptides of the present invention may be glycosylated or may be non-glycosylated. In addition, polypeptides of the invention may also include an initial modified methionine residue, in some cases as a result of host-mediated processes. Thus, it is well known in the art that the N-terminal methionine encoded by the translation initiation codon generally is removed with high efficiency from any protein after translation in all eukaryotic cells. While the N-terminal methionine on most proteins also is efficiently removed in most prokaryotes, for some

proteins, this prokaryotic removal process is inefficient, depending on the nature of the amino acid to which the N-terminal methionine is covalently linked.

[0180] In one embodiment, the yeast *Pichia pastoris* is used to express polypeptides of the invention in a eukaryotic system. *Pichia pastoris* is a methylotrophic yeast which can metabolize methanol as its sole carbon source. A main step in the methanol metabolism pathway is the oxidation of methanol to formaldehyde using O<sub>2</sub>. This reaction is catalyzed by the enzyme alcohol oxidase. In order to metabolize methanol as its sole carbon source, *Pichia pastoris* must generate high levels of alcohol oxidase due, in part, to the relatively low affinity of alcohol oxidase for O<sub>2</sub>. Consequently, in a growth medium depending on methanol as a main carbon source, the promoter region of one of the two alcohol oxidase genes (*AOX1*) is highly active. In the presence of methanol, alcohol oxidase produced from the *AOX1* gene comprises up to approximately 30% of the total soluble protein in *Pichia pastoris*. See, Ellis, S.B., *et al.*, *Mol. Cell. Biol.* 5:1111-21 (1985); Koutz, P.J., *et al.*, *Yeast* 5:167-77 (1989); Tschopp, J.F., *et al.*, *Nucl. Acids Res.* 15:3859-76 (1987). Thus, a heterologous coding sequence, such as, for example, a polynucleotide of the present invention, under the transcriptional regulation of all or part of the *AOX1* regulatory sequence is expressed at exceptionally high levels in *Pichia* yeast grown in the presence of methanol.

[0181] In one example, the plasmid vector pPIC9K is used to express DNA encoding a polypeptide of the invention, as set forth herein, in a *Pichea* yeast system essentially as described in "*Pichia* Protocols: Methods in Molecular Biology," D.R. Higgins and J. Cregg, eds. The Humana Press, Totowa, NJ, 1998. This expression vector allows expression and secretion of a polypeptide of the invention by virtue of the strong *AOX1* promoter linked to the *Pichia pastoris* alkaline phosphatase (PHO) secretory signal peptide (i.e., leader) located upstream of a multiple cloning site.

[0182] Many other yeast vectors could be used in place of pPIC9K, such as, pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalpha, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, and PAO815, as one skilled in the art would readily appreciate, as long as the proposed expression construct provides appropriately located signals for